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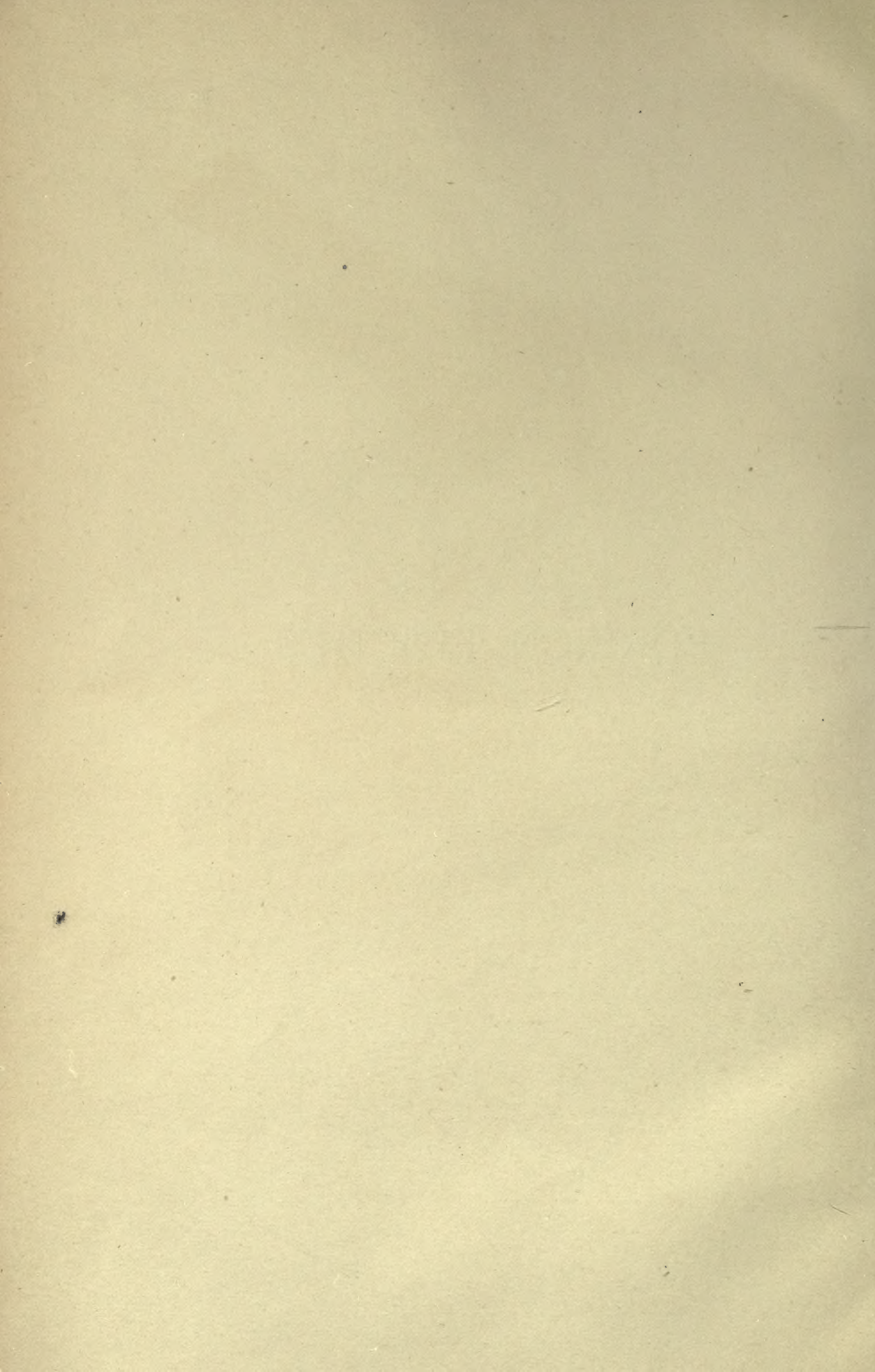
Biology
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Theodore S. Palmer

D. S. Palmer

Jan. 14, 1911

FOREIGN FINCHES





SUPERB TANAGER (*Calliste fastuosa*)
PARADISE TANAGER (*Calliste tatao*)

FOREIGN FINCHES

IN CAPTIVITY

SECOND EDITION.

BY

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"BRITISH BIRDS, WITH THEIR NESTS AND EGGS (ORDEFS PASSERES AND PICARLÆ),"

AND NUMEROUS SCIENTIFIC WORKS AND MEMOIRS DEALING WITH VARIOUS BRANCHES OF ZOOLOGY

ILLUSTRATED BY F. W. FROHAWK, M.B.O.U., F.E.S.

Delineator of the series of plates issued with "British Birds, with their Nests and Eggs," &c.

BRUMBY AND CLARKE, LIMITED,
HULL AND LONDON.

1899.

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TO MR. JOSEPH ABRAHAMS

THE WIDELY RESPECTED NATURALIST AND IMPORTER

THE PRESENT WORK

IS DEDICATED BY THE AUTHOR

IN ACKNOWLEDGMENT OF

THE NUMEROUS IMPORTANT NOTES AND VALUABLE SUGGESTIONS

IMPARTED TO HIM

BY THAT KEEN STUDENT OF BIRD-LIFE

AND WITHOUT WHICH THE FOLLOWING PAGES WOULD

IN SOME RESPECTS

HAVE BEEN BARREN OF NEW AND INSTRUCTIVE FACTS

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INTRODUCTION.

FINCHES are of all Cage-birds the most popular, not only because they are companionable, neat, and cleanly; but because they are, with few exceptions, easy to provide for, and when not good singers, frequently compensate for this deficiency, by considerable beauty of of plumage.

The first foreign birds which ever came into my possession were of the Finch tribe. At the time I was birds-nesting in Kent; and, hearing that a certain florist amused himself by breeding Canaries for sale, I thought I should like to purchase two or three strong cock birds, so as to introduce fresh blood into my stock. In his window I saw a cage containing six little foreign birds, which appeared to be very merry and in good feather; though at that time the thermometer only registered a temperature of about 50 degrees: their owner informed me that he had no trouble with them on that score, for they did not suffer even in frosty weather, though he never warmed the place by artificial heat. I asked the price of these little birds, and, in my ignorance of their true value, considered myself lucky to be able to secure them for fifty shillings. These six birds, which consisted of a pair of Amaduvade Waxbills, a pair of Black-headed Mannikins and a pair of Spice Finches, were my first introduction to the so-called "Foreign Fancy:" at the present time the mania for keeping these charming pets has so increased, that there are very few of the regularly imported species, of which specimens have not, at some time or other, inhabited my cages and aviaries.

The present work is designed to supply a want which has been felt by all lovers of foreign birds; since its object is to give a reliable account of various cage-birds, popularly known as Finches, which either are regularly imported, or have, from time to time, been imported into this country.

Now, it seems to me, that in works of this nature, the so-called "scientific" element is too much ignored. Whereas, the Cabinet Naturalist is always interested to hear of new facts respecting the life history of the species which he studies, the aviculturist too often

disregards, or even regards with contempt, the life-long labours of those whose aim is to arrange species according to their affinities, by a careful study of their structure. If only each of the two classes of students could be brought to look with respect and gratitude upon the exertions of the other, I am convinced that both would obtain information which would be useful to them. A knowledge of structural affinities would certainly be useful to the breeder of mules, and would enable the ordinary aviarist to judge correctly which species would be most suitable associates, more particularly in respect to food: on the other hand the student of the dead skins, would, from a knowledge of the habits, actions and songs of the living specimens, be less inclined to give undue importance to slight structural peculiarities.

All knowledge is science; therefore, in the present work, I do not intend to ignore the work of the Museum scientist, although it may be convenient not to follow his classification in all its details.* Moreover, as already hinted, inasmuch as the rules for the arrangement of groups of species known as genera, are and must be based solely upon structure, without reference to living characteristics; the aviculturist (who studies the nesting peculiarities, actions, dispositions, modes of courting, and song of his feathered pets) must perforce consider comparatively slight peculiarities of beak, or the relative length of claws and feathers, when they dissociate birds which correspond in their whole living economy, as of secondary importance.

A Finch, in the strictest sense of the term, is a member of the subfamily *Fringillinae*, and is characterized by the possession of a stout conical beak, together with the atrophy of the first flight feather in the wing: † the latter limb is long and pointed, with the second, third, and fourth primaries of nearly equal length; the foot is short, scaled in front, but not at the back.

Compared with other allied birds to which the title of Finch has been assigned, but most of which actually belong to the family of Weavers, very few living typical Finches ever get into the hands of amateur aviarists; indeed, owing to their modest colouring, there is but little demand for them; consequently, unless remarkable for the sweetness of their song, the majority of such as do by chance find their way to the dealers, are sold to the various Zoological Gardens of Great Britain and the Continent.

* Many of the descriptions in the following pages are but slightly modified reproductions of those by Dr. Sharpe.—A.G.B.

† The flight feathers consist of primaries and secondaries; the number of the former being normally ten; but an examination of the wing of a Linnet or any other true Finch, will reveal the fact that the first primary is apparently missing.—A.G.B.

A very small portion of this work, therefore, can be devoted to the *Fringillinæ*, or even to the family *Fringillidæ*: charming though these are, it cannot be denied that their cousins the Weavers, of the nearly allied family *Ploceidæ*, have taken the hearts of all bird-lovers by storm, and are more generally recognized as "Foreign Finches" than the rightful heirs to the title.

Of all the Weavers, the so-called "Ornamental Finches" are justly most admired; entirely unlike any of our British Birds, they are often extremely beautiful in colouring and design; their songs, though not especially meritorious, are quaint and entertaining: their love dances are highly diverting; their actions are often sprightly; lastly the majority of them are by no means difficult to keep either in cage or aviary.

According to Dr. Sclater, in his Introduction to a *Monograph of the Genus Calliste*, "a Tanager is a dentirostral Finch; that is, a bird which, having all the essential characters of the Finch, is yet so far modified, as regards certain parts of its structure, as to fit it for feeding, not on grains and seeds, which are the usual food of the *Fringillidæ*, but on soft fruits and insects, the habitual food of the *Sylviadæ*" (Warblers). The family *Tanagridæ*, therefore, which contains the most brilliantly coloured of all Finch-like birds, is represented here by the three most regularly imported species, and by one rarely imported.

On the other hand the singular family *Icteridæ*, which links the Finch-like birds to the Starlings, seems to me so far removed from the typical Finches, and to show so much of the Starling in the character of the legs, and in the acrobatic actions of its members, that it hardly seems to have a claim to be considered in the present work. Of this family I have kept the Bobolink, the Silky Cow-bird, the Red-breasted Marsh-bird with several others, and cannot say that I have found any of them specially interesting pets; they are extremely nervous, require a good deal of insect food, and their vocal performance, with the exception of that of the Bobolink, which is amusing though excruciating, is in no respect remarkable. The genus *Icterus*, however, is a notable exception.

Aberrant Finch-like birds some of them are it is true; the genus *Dolichonyx* (containing the Bobolink) being, both in summer and winter plumage, not unlike the typical Weavers, whilst the Cow-birds are more Bunting-like, and the Red-breasted Marsh-bird strongly resembles the Military Troupials, and, therefore, more nearly approaches the true Starlings.

I propose to consider the *Fringilloid* birds in the following order:— Tanagers, True Finches, Buntings, Grosbeaks, Weaving-Finches (including Waxbills, Grass-Finches and Mannikins), Whydahs, and Weavers. If the work were to be extended I should proceed next to the *Icteridæ* and so on to the Starlings.

The arrangement of the families is based upon that followed in the British Museum *Catalogue of Birds*, modified in accordance with the views expressed by Dr. Bowdler Sharpe on the first page of volume XIII; but as regards the order of the subfamilies and genera, I have felt bound to make some changes, based upon observations of the habits and actions of the living birds as made in my aviaries, and to avoid doing violence to the views of fanciers generally.*

The “Mannikins” and “Waxbills” are intermingled in scientific works; whereas, to the student of living birds, they form two fairly well-marked groups; the former are, compared with the Waxbills, heavy and clumsy in their actions; when singing, their necks are stretched upwards to their highest level, the head slightly depressed and the beak opened to its widest extent; whilst their song, with very few exceptions, is barely audible. On the other hand the Waxbills are light and active, the beak is raised rather than depressed, when singing: and, if dancing accompanies the song, are pointed upwards, the song itself being bright and shrill. It is true that as regards activity and clear vocal utterance, the hybrid Pied Mannikin and the Silver-bills approach the Waxbills; but in other respects, they are Mannikins pure and simple: the Java Sparrow is also exceptionally musical.

The Combasou and allies are, by scientists, widely separated from the typical Whydahs; yet in their chattering song, their habit of scraping in the sand when feeding, and their winter plumage, these birds agree closely with the Widow-birds.

As regards other changes, the Cardinals, in deference to popular feeling, and because of their general similarity, are here kept together; and as Dr. Sharpe admits that the beak of *Cardinalis* is Bunting-like, there can be little harm in the association, if it be granted that without further evidence it shall not be considered a true Bunting.† The Weavers, so called, are also placed in succession; inasmuch as their violent courtships, pugnacity, harsh voices, and a similarity of winter plumage in most of them, whether strictly belonging to the *Ploceinæ* or *Viduinæ*, seem to indicate affinity.

* Of course I am perfectly well aware that the scientific naturalist must follow structure alone in his classification.

† See notes on the Subfamily *Emberizinae*.

Having taken into consideration their classification in Nature, the next point is to consider which of these birds should be associated in aviaries. Well, if I only possessed two large aviaries, I would put all the large birds in one and the small in the other; but with better accommodation, nicer distinctions should be made. Weavers and Whydahs, excepting the largest, do very well with Rose and Saffron Finches, Nonpareil or Indigo Buntings (but not with both of these), Canaries and other typical finches. Cardinals are best kept in cages; or each species with a small aviary to itself. Diamond Sparrows and Parson Finches are extremely aggressive, as also are Cut-throat Finches; these are all best kept apart in spacious breeding-cages. Bronze Mannikins are occasionally quarrelsome, and sometimes come to a bad end by attacking a bird stronger than themselves. Green Singing-Finches quarrel with other similarly coloured Serins and sometimes get punished for their combative behaviour. Grey Singing-Finches quarrel incessantly, but only with one another; the fighting in their case is not spiteful, although it rather injures their plumage; the more they fight, the better they sing. The White-throated Finch is spiteful to many small finches, and needs watching. The Combasou is quite harmless; though meddlesome, he is a very good-natured old fellow and a great admirer of the fair sex. Nonpareils usually quarrel with Indigo Buntings and sometimes with Saffron Finches; in the first instance they have the better of the disputes, but in the second, very much the worse.

After making sure that your birds do not murder one another, your first consideration should be to exclude all draught: compared with this, warmth and sunshine are of very little importance; even the most delicate of the little Astrilds will stand a considerable degree of cold without necessarily succumbing; but the least draught will be almost immediately fatal. As regards sunshine, birds undoubtedly enjoy it, but they will live for many years in perfect health without it.

A cage for Finches, or indeed for any other birds, should therefore be open in front only; in other words, it should be what is known as a box-cage: even an aviary when constructed on this plan shows a considerably lower rate of mortality than if open to every wind of heaven.

Cleanliness must rank next in importance to absence of draught: fresh air, which is a necessity, is one result of cleanliness. To secure this, every aviary should be thoroughly swept out and cleansed once a week, and all cages, however large, if they contain more than a pair of birds, should have fresh sand twice a week; every receptacle for

water should be washed with warm water daily, and every seed-pan if necessary; perches should be examined to see that they do not get dirty, and if the walls or wires of cages become foul, they should be thoroughly washed, and in the case of such as are made of wood, freshly lime-whited.

For food and water receptacles, metal hoppers and glass or earthenware fountains are usually recommended; the former undoubtedly lessen the waste of seed and are valuable for aviary purposes, but the latter are difficult to clean and yet require thoroughly scouring out every day, exactly the same as any other drinking vessel; otherwise the water becomes stagnant and fetid, producing that most fatal of all bird diseases—inflammation of the bowels.

Undoubtedly the best plan for supplying water in an aviary, is to have a fountain with a small jet, playing incessantly into a shallow glass basin, and running over into a larger bowl, which carries it down to a drain pipe: in my two bird-room aviaries I have adopted this plan: for my other aviaries, however, I find a large zinc tray, two inches deep, and daily cleaned out, a very satisfactory drinking and bathing trough.

As regards vessels for cages, most practical men who have a large family of feathered pets to look after, have tried, one after another, all kinds of patents for the reception of food and water, and have finally returned to open pans. To my mind nothing is better for both purposes than the little circular glazed earthenware pans sold for Pigeons' food by many corn-chandlers. They have an inner lip below the rim, which prevents seed from being easily thrown out, or if large enough for bathing purposes, saves much of the splashing over caused by a bird when washing: moreover, if dipped into a pail of hot water, they can be cleaned without the least trouble, and wiped dry with a flannel. I need hardly remind my readers that no open pan should be placed below a perch, and wherever placed it should be examined at least once a day to see that it does not get foul.

One very important point, to secure healthy birds, is not to be economical in the matter of sand: nobody, unless he had tested the marked increase in mortality, resulting from the use of an inferior article, would for a moment credit that it was possible. The best sea-sand, not washed, but just as brought from the shore, is the most healthful; and no other should ever be used. An attempt to substitute ordinary red sand, one year, in my aviaries; resulted in the loss of no less than ninety birds between August and the following May.

To the English breeder of Foreign Finches, the works of Dr. Russ, the great German Aviculturist, are unfortunately but little known. This marvellously industrious breeder, has succeeded in rearing the majority of the regularly imported, and many of the rarely imported species. His descriptions of the habits, nidification, young plumage, songs; and last (but by no means least) the proper management of the numerous species which have, for many years, been under his care, are so complete in every detail; that any book treating of birds in captivity, would be in the highest degree imperfect which did not fully recognize their importance.

I have, therefore, not hesitated to translate largely from Dr. Russ' writings, for the benefit of those who may desire to follow the example of this most indefatigable Bird-lover. I fully believe that, in so doing, I shall bring to the notice both of amateur and scientific Ornithologists, many important facts, which he has elucidated; and of which, up to the present time, they have not been aware.

The breeding of Foreign Birds has, for many years past, been a hobby with German Naturalists; whereas, in England, this branch of aviculture is still in its infancy. Without a knowledge of the proper mode of procedure, which a study of the works of our German friend affords, there must needs be many futile experiments made by English breeders, before they can hope to attain the success which has rewarded the aviarists of the Fatherland: but, by carefully studying and following out Dr. Russ' very explicit instructions, I believe that much loss and disappointment to themselves, and considerable injury to their feathered foster-children may be avoided.

In the following pages, mention has been made of birds imported by myself from abroad. It must be candidly admitted that this is a very expensive method of adding to one's stock; for although, by good luck, I thereby acquired several rare species, and so received a fair exchange for my outlay, the majority of the birds sent home were not what had been ordered, some were in ill health when received, and several were undesirable additions.

Therefore, unless they have personal friends, who will not only purchase the birds abroad from the natives, at a reasonable rate, and attend to them properly on the journey to this country; amateurs will do far better by purchasing such birds as they require from those whose business it is to import; even though they may fancy, that by so doing, they are paying double or treble the price for them. When birds are purchased abroad, they must be paid for at the time; and

as a rule, at least half of them never reach Europe alive, whilst many others die soon after their arrival.

Before concluding these introductory observations, it is only right that I should thank such friends as have from time to time encouraged me in the study of Cage-Finches:—I am indebted to the Hon. Walter de Rothschild for the first living examples which I possessed of Green Amaduvades, Pin-tailed Nonpareils and Red and Black-headed Gouldian Finches. To Messrs. J. Abrahams, J. Johnston, my artist Mr. F. W. Frohawk, and Miss E. M. Sharpe for similar kind gifts.

To my friend Mr. J. Housden, of Sydenham, for much assistance in many ways since I first became acquainted with him and his vast collection of feathered pets.

To the Rev. W. J. Holland, D.D., Ph.D., &c. of Pittsburg, U.S.A.; to Col. Charles Swinhoe, late Commissary General of Bombay; and to Dr. F. Moore, late Zoological Curator of the Indian Museum, London, for valuable information respecting the habits of Finches in a wild state; and to my friend and colleague Dr. R. Bowdler Sharpe, for the great assistance which I have derived from a study of his many and important Ornithological Works.

“The Lilies,” Beckenham.

ARTHUR G. BUTLER.

FOREIGN FINCHES

IN CAPTIVITY.

THE TANAGERS.

TANAGRIDÆ.

OF these most gorgeous birds, which link the Finches to the Warblers, no less than three hundred and seventy-four species are recognised by scientific workers. Of this enormous series of beautiful creatures, perhaps twenty or so have, from time to time, been brought alive to Europe, but only three are imported with comparative frequency: nevertheless, these are among the most exquisitely coloured of the family.*

The principal reason why so few Tanagers cross the seas is, without doubt, to be found in the fact that only those who have had experience in keeping them as cage-birds know how to feed them properly. In their own country, where ripe oranges and other fruits are plentiful, and where the air is warm and pervaded by sunlight, there is no difficulty in providing for their needs; but on board ship, in an all-wire cage, and with nothing but sour oranges and an occasional half-ripe banana, the unhappy Tanager soon gets out of sorts, so that as it passes into more northern latitudes, it has no strength to resist the cold, and therefore dies.

All birds should be imported in wooden cages, open only in front;

* Since this was written a good many examples of the Black Tanager have been imported, but they are but little more attractive than a Silky Cowbird, and far more expensive to feed, therefore they are hardly likely to become popular.

in the latter the usual door, fitted with a double spring, should be placed. Tanagers especially should be thus protected against cold winds; a very good addition, in the case of these and all delicate birds, would be a muslin blind to draw tightly over the front in cold weather.

As regards food on the journey, hard-boiled egg and potato, with ripe fruit when procurable, would be far preferable to sour oranges; but to anyone visiting America, by far the best plan would be to take out a dozen large tins of Abrahams' food for insectivorous birds, and give it daily, mixed with an equal quantity of stale bread crumbs and boiled potato chopped up or passed through a masher. I am satisfied that, by attending to warmth and diet, Tanagers might be readily imported.

Like the true Finches, Tanagers build open cup-shaped nests, often neatly made, and with a good deal of moss in the outer wall. Their eggs are spotted, especially at the larger end, with various shades of brown or lavender, on a white, greenish, or brownish ground-tint. Although the adult birds, when not nesting, are most frequently seen in flocks among the higher trees, the nests appear to be generally placed in the forked branches of low trees or shrubs, probably because in such a position they are less exposed to the violence of stormy winds.

I do not believe that a very high temperature is necessary in order to keep Tanagers in health: the principal things to attend to are, avoidance of draughts and of unnatural food. Wiener marvelled that his Tanagers died in a few weeks, although he kept their cages in a hothouse, surrounded with palms and shrubs. If I were a caged bird, it would not be a great consolation to be constantly reminded of the foliage of the tropics, or whilst condemned to hop up and down incessantly on a hard perch with no yielding in it, to see all around me the elastic leaves and branches upon which I ought naturally to be swinging to and fro.

Most, if not all, tropical birds can be so far acclimatized as to do well in a temperate atmosphere, but the steamy air of a hothouse containing growing plants, would undoubtedly be injurious, unless plenty of ventilation, without draught, could be supplied.

But there is another point of interest to be considered in respect to Wiener's treatment of Tanagers. He tells us that they "should be kept on Nightingale food, with a little crushed hemp-seed. Sweet, over-ripe pears and bananas, or very sweet grapes, should be given as much as possible, together with a few meal-worms."

Wiener does not explain what Nightingale food is, but another writer for the same work says that it "is capable of great variation,

and should be selected according to the individual tastes of the birds. The most successful is scraped bullock's heart or raw beef mixed with chopped egg, bread-crumbs, German paste, and some ants' eggs." If he gave this mess to his Tanagers, the only marvel is that they did not expire in a day or two. This reminds me of a sentence in a letter sent to me by a Spanish dealer at Buenos Ayres:—"You cannot import Tanagers, as they are very delicate, and have to be fed upon fresh raw beef." To give minced uncooked bullock to a fruit-eating bird seems to me as preposterous as to attempt to feed a lion on buns; but many fanciers give it to all their soft-billed fruit-eaters, in spite of the laxative effect which it has upon them: yet these same men would shudder at the bare notion of offering raw meat to a parrot or a fruit-pigeon.

Mr. J. Abrahams, writing to me in January, 1892, says:—"They are long-lived birds if kept on my 'Mixture,' mixed with bread and damped, and cold potatoes, chopped up with my egg-yolk; also ripe fruit in season: but if given currants, or honey, or any similar messes, they get chronic diarrhoea, and soon make their exit."

Those amateurs, therefore, who are fortunate enough to acquire Tanagers, will be able to choose between the two types of food recommended above—that used by Herr Wiener, which resulted in the death of his birds, as he himself admits, after a few weeks: or that used by Mr. Abrahams, which constitutes them long-lived birds, even though a hothouse and tropical foliage are not provided to try to persuade them that they are still free.

Dr. Carl Russ gives the Tanagers a very bad character; he thus describes them:—"Glittering, rich in colour and magnificent, they have no true song, only low, harsh, unpleasant sounds; not agreeable and lovable, but mostly tempestuous, awkward, nervous, not easy to tame; in spite of several assertions to the contrary, not peaceable, with few exceptions, characteristic of the delicate exclusively fruit-eating species alone; some of them even very malicious towards those of their own kind, or other companions; therefore neither fit to be kept in an aviary nor bird-room."

By the fruit-eating Tanagers, Dr. Russ probably means the species of *Euphonia*, (or Violet Tanagers); he having recorded the fact that, when rearing its young, a Scarlet Tanager destroyed and devoured the newly-hatched young of other birds. It is probably on account of this cannibalistic tendency, which may perhaps have been abnormally developed to supply the lack of sufficient variety of insect-food, that raw meat is recommended as a food for these birds. I once had a

Canary which devoured the beak and part of one wing of one of its own young, and pecked its back: yet no breeder of Finches would therefore conclude that raw veal was the natural food for Canaries when breeding, although the deduction would be every whit as reasonable in one case as the other. Consider the matter fairly:—

A particular pair of Scarlet Tanagers, in a large garden aviary, steals and eats the young of Wagtails newly hatched in the same aviary. *Ergo*—All Scarlet Tanagers should be fed on raw bullock's liver or beefsteak. Why? Because, (Don't you understand?), dead ox and newly-hatched squab are, to all intents and purposes, the same thing. No, I am too obtuse to understand that, and what is more I don't believe it, and will not teach such utter nonsense. Somewhat the same line of mental argument must be entered into by the man who recommends chopped beef for soft-billed songsters, only the argument is one degree more absurd, because he has to persuade himself that worms or small beetles are identical with bullock in their effect on the health of his pets.

THE SUPERB TANAGER.

Calliste fastuosa, LESS.

NO less than five species may possibly be confounded under this name by amateurs. Indeed, I feel tolerably sure that three of these have been exhibited at bird shows under the title of "Superb Tanagers." Of these, I have myself seen one, and that the least like the typical species, (namely, *C. festiva*), under this very appropriate, though quite inaccurate denomination.

The true Superb Tanager has the upper surface of the head and neck of a glittering emerald green colour; the back velvety black in front, brilliant orange or bright cadmium yellow behind; the wings and tail black, edged above with purple, blackish below; the outer secondary feathers brilliant orange; the lesser wing-coverts emerald

green; under surface of the body deep purplish blue, passing into silvery blue on the breast; the middle of the throat and the chin black, divided one from the other by a line of greenish blue; length 5 $\frac{1}{10}$ inches; bill black; legs dark brown; iris of eye brown.

The female resembles the male, excepting that its colouring is less brilliant.

The Superb Tanager is a native of Pernambuco, and, according to W. A. Forbes, is believed to be peculiar to that province, from which place "skins are occasionally received by the dealers in Paris and elsewhere."

"It is a species often seen, too, alive in the Zoological Gardens of Europe, though no naturalist seems to have yet met with it in the wild state. It does not appear to be common in Pernambuco, at least I only met with it twice; once near Macuca, where I shot a female out of some bushy *capoeira*, and again at Quipapá, where I saw what I believe was this species in the virgin forest. The bird, however, was perched, at a great height from the ground, on the topmost branches of a large tree, and only the brilliant orange of the rump was visible. Whilst staying at Cabo, a freshly shot adult of this bird was also brought to me to skin."

Herr August Wiener says:—"In the market-places of Rio de Janeiro, Bahia, or Pernambuco, the most beautiful Tanagers can be bought at 2d. per head; in England they are worth £2 each, and but rarely offered for sale."

Now, in the above mentioned market-places, one would be able to obtain *Calliste tricolor* and *C. festiva*, as well as *C. fastuosa*. The former, which inhabits Rio Janeiro and Bahia, differs from the Superb Tanager in having the lower half of the orange patch on the back replaced by green; whilst *C. festiva* from Pernambuco, Rio Janeiro, Bahia, and San Paulo, has the whole of the posterior half of the back bright green. These, of course, are not the only differences.

The nest and eggs of the Superb Tanager and its near relatives seem not to have been described; but they are probably not unlike those of other species of *Calliste*, the nests of which are cup-shaped, with plenty of moss outside, sometimes mixed with slender twigs; the inside lined with fine roots and horse-hair; the eggs with a greenish ground tint, densely speckled and spotted with some shade of brown and lavender. An illustration of the egg of one of the species of *Calliste* seemed to me to resemble that of a Warbler rather than of a Finch.

The best sized cage in which to keep the Superb and allied

Tanagers, in order to show off their marvellous beauty to perfection, should measure at least two feet in width, eighteen to twenty inches in height, and about the same in depth from front to back. If an attempt should ever be made to breed these birds, the cage would have to be quite a foot larger in all dimensions, and a furze-bush, or some similar dense shrubby plant should be fixed against the back wall. It is, however, doubtful whether, without a high temperature, success in breeding could be obtained. In public Zoological Gardens I have seen the Superb Tanager kept in cages so small that the poor bird not only had but little room for exercise, but was quite unable to throw any life or action into its movements: a stuffed specimen would have been almost equally interesting.

Dr. Russ does not encourage amateurs to keep the Superb Tanager and its allies. He says:—"With this species a little related group of Tanagers commences, which are remarkable for their extremely splendid and manifold colouring, and therefore enjoy considerable popularity, whilst several are not considered very rare in the trade. But unhappily there is a very dark side to the picture. They eat fruit by preference, frequently despise even an addition of ants' cocoons, mealworms, egg, bread, and boiled rice; make an incredible mess, are difficult to keep clean; are delicate above everything, become ill through the most insignificant unfavourable influences, and die early as a rule, even under the most solicitous care." A little further on he adds:—"Very beautiful but too tranquil, almost idiotic, only eats incessantly."

In his *Fremdländischen Stubenvögel*, Dr. Russ gives almost exactly the same account, to which he adds but little information; he says:—"In its disposition, the extremely variegated little bird unfortunately does not respond to this beautiful external natural dowry; it shows itself to be dull and listless, almost dull-witted, and its most prominent characteristic is that of a feeder. From early morning until evening it sits at the trough and gobbles up astounding quantities of fruit, sweet rice, and all kinds of other soft food, and makes a corresponding amount of dirt, so that the keeper of such a bird has continuously to engage in a gigantic struggle with the preparation of food on the one hand and the uncleanliness on the other hand. Perhaps, however, the cause of such unlovable traits has its foundation only in bad management, which these birds have to put up with from the moment of their capture and during their entire transportation; and in such case they would then, as soon as they had completely recovered, immediately become more moderate and cleanly. A regard for their magnificent colouring would be a sufficient recompense for attempting experiments

on this account with them. Unhappily on the one side their noted frailty, and on the other side their extremely high price are terribly opposed to this."

In the early summer of 1897, I purchased an example of this lovely species (recently imported) at a very reasonable price, and I was soon able to confirm the opinion which I have always held—that this and other Tanagers are no more greedy, dirty, wild, stupid, or delicate, than any other birds when rationally treated.

Tanagers, being essentially birds of active habits, and almost incessantly on the wing, need a large flight cage; being fruit-eaters they need a bath in which to get rid of the stickiness which clings to their feet and beaks after a meal, and to cleanse away such soft excreta as may adhere to their feathers. I provided both from the beginning, and as food I gave about a table-spoonful of my ordinary soft-food mixture, half an orange, and about a quarter of a banana. My Tanager in the course of a day eats a scarcely perceptible quantity of soft food, chiefly selecting the egg, and about half (or sometimes only a third) of his fruit; he is fairly tame, and has never had a day's illness since I bought him; lastly, far from sitting stupidly all day over his food, he flies actively about, chirping brightly, and feeding no more frequently than any other fruit-eating bird. In addition to his harsher notes he occasionally sings a reedy little song somewhat resembling that of the Indigo-Bunting.

THE PARADISE TANAGER.

Calliste tatao, LINN.

THIS extremely lovely species is nearly allied to *C. fastuosa*, and, without care, might easily be mistaken for it by an amateur who had not had an opportunity of comparing one with the other. It comes from Cayenne, Guiana, the Rio Negro, Colombia, and N.E. Peru. Above it is velvety black, with the bend of the wing turquoise blue; the lower back with *its anterior portion scarlet*, and its posterior portion

golden yellow; the top and sides of the head metallic grass-green; under surface turquoise blue, the throat purple; the vent black; under wing-coverts turquoise blue; remainder of wing below and of tail blackish. Length $4\frac{1}{5}$ inches. Bill black, legs dark brown. The sexes are alike.

Whereas, even in the largest collection of skins, the Superb Tanager is esteemed a rare bird, the present species on the other hand is admitted to be decidedly common. Both species are kept as cage-birds in South America, and can therefore be purchased from the natives. It would consequently be remarkable if the former were the only one sent alive to Europe. Mr. Abrahams, however, writes that, to the best of his belief, it is the only one that has passed through his hands.* *Calliste festiva*, received by the Zoological Gardens, of London, in 1875, probably reached them from some other source.

The Paradise Tanager is said to have no song, only a call-note; to be extremely common, and not timid, excepting in the pairing season, when most Tanagers fly in small parties from one fruit-tree to another, showing a special preference for oranges, and approaching close to dwellings in order to feed on these, or other favourite fruits. It lives in communities, and mostly frequents the higher trees. On account of its great beauty, it is a favourite cage-bird with the natives. The Yeni Tanager, (*Calliste yeni*), a near ally of *C. tatao*, might perhaps be confounded with *C. fastuosa*: it, however, inhabits Bolivia, Peru, the Upper Amazons, and E. Ecuador, so is far less likely to be imported than the four others. It differs from *C. tatao* in having the whole of the lower back scarlet.

Bartlett mentions this species on the Upper Amazons as "Found in small flocks at certain seasons, when the fruit is ripe."

Dr. Russ calls *C. tatao* the "Seven-coloured Tanager," and says it is very rare; even rarer than the Superb Tanager, which he calls the "Many-coloured." Of course he means that it is much more rarely imported, for in South America it is immeasurably more abundant, and consequently is likely to become, eventually, far less rare in the market than *Calliste fastuosa*: occurring commonly at Cayenne, it should be procurable at Pará, and if not already obtainable there, doubtless soon would be, if the natives were aware that they could do a good trade with it. Why the French do not import it wholesale from Cayenne seems a mystery. In Dr. Russ' larger work no additional information is given; therefore we may safely conclude that it is one of the rarely-

* In the *Gefiederte Welt*, for February, 1891, this species is said to have been exhibited by Mr. Boss, at the sixth "Ornis" exhibition.



VIOLET TANAGER.
(*Euphonia violacea*)

imported birds which have not come into his hands. There can be little reason to doubt that the same observations made respecting the Superb Tanager would be applicable to this and the other allied species of *Calliste*.

The Paradise Tanager is, without question, by far the most beautiful of all the *Tanagridæ*: it is a species frequently seen in cases of stuffed birds, and at one time disgraced the women of Europe by ornamenting their hats and bonnets: but nowadays, although the barbaric custom of adorning the head with birds' feathers and skins has unhappily not wholly been abolished, the subjects chosen for the purpose are less obtrusively gorgeous in colouring: thus, though there is still the sad prospect before the ornithologist of seeing the Egrets and other soft-plumaged species annihilated, there is some hope for the more brilliant of nature's feathered offspring.

THE VIOLET TANAGER.

Euphonia violacea, LINN.

THIS bird is an inhabitant of Guiana, Trinidad, the Lower Amazons, and South-eastern Brazil. Its colouring, though less dazzling than that of the foregoing species, is nevertheless exceedingly beautiful: above, it is of a dark shining violet blue, with the front of the head to a line with the eyes orange-yellow; on the under surface it is orange-yellow, becoming rather pale towards the vent; the tail beneath is black, with white patches on the two outer rectrices; the wings below are black, with a large white patch occupying the inner webs of the feathers; the bill and legs black. Entire length $3\frac{5}{8}$ inches.

The female above is olive-green, but below yellowish-olive; the inner webs of the wing-feathers being white at the base.

The Violet Tanager has two near relations:—*E. hirundinacea* from Southern Mexico and Central America, as far as Costa Rica, which may be distinguished by the steel-blue colouring of its back; and *C. gnatho*

from Costa Rica only, which differs in its more powerful, swollen bill.

Dr. Russ thus speaks of the Violet Tanager, which he calls "The Common Piper," (*der gemeine Organist*):—"Sometimes common in the market. Harmless and peaceable in the bird-room. Song droll, ventriloquial, intermixed with single prolonged sounds and tones not without beauty; industrious; decidedly not a superior songster, however, as it has been fabled. All these charming organists eat fruit, (soft pears they will empty clean out, right up to the thin peel), soaked egg-bread in marvellous quantities, and they produce a corresponding amount of dirt. They are, moreover, very frail, did not live long enough to breed in my bird-room, though I had a good many pairs; hitherto have only gone to nest with Mrs. von Proschek, in Vienna, but without result. Price ten to twelve shillings per pair."*

In his paper on *Birds of Pernambuco*, Mr. Forbes thus speaks of the Violet Tanager:—

"This violet and yellow Tanager I found sparingly round Recife, and also at Parahyba, both in gardens and in the vicinity of high forests." "This bird is kept commonly as a cage-bird by the Brazilians, who call it 'Guarratan,' a name also applied to several small bright plumaged birds."

Burmeister says it is called "*Gatturama verdadeira*," and that "its home is the whole wooded country of Brazil."

Neuwied observes:—"The *Gatturama* is a very elegant bird, especially common in the southern districts, where it is constantly kept in cages. It is lively, active, and flies rapidly. Its food consists of many varieties of fruits; like most Tanagers, it shows a special preference for ripe oranges, bananas, guavas, etc., and therefore does much mischief. I never heard any song from our birds beyond a short monosyllabic call-note."

Wiener says:—"The size of this, one of the most frequently imported Tanagers, is only about equal to that of our Siskin, and if we can supply him with plenty of fruit, the bird will live for some time in the cage, consuming an incredible quantity of pears, bananas, etc. Some ornithologists, who have observed this species in its wild state, write of its song, whilst in the cage nothing beyond a peculiar gurgling, but not unpleasant, sound is ever heard. The Violet Tanager is comparatively harmless in the aviary, being peaceable towards other birds."

A paragraph in a letter from Mr. Abrahams is somewhat opposed to what Wiener states. It says:—"The two most imported kinds, but

* We should be glad to obtain them at this rate in England.



SCARLET TANAGER
(*Rhamphocelus brasilius*.)

chiefly by me, are the Superb Tanager and the Brazilian Tanager. The Violet Tanager does not come so often, but I wish it did, for it is a magnificent songster." Dr. Russ also, though he does not admit the superlative beauty of its song, allows that it is lively, and not without charm. We are therefore forced to the conclusion that Wiener's example was deficient in vocal acquirements, and an exception to the rule.

The gizzard of a specimen of the Violet Tanager, which was shot by Layard, at Pará, was found to contain mucilaginous seeds; but it seems highly probable that these were contained in some fruit which it had devoured, and the pulp of which had been digested.

A specimen of this species, in good condition, was offered to me at a reasonable price in the autumn of 1897; but, as I already possessed the far more beautiful Superb Tanager, I was not tempted to add to my daily labour by the purchase of another fruit-eater. From what I gathered from various sources, there must have been an unusual importation of the Violet Tanager during this autumn.

THE SCARLET TANAGER.

Rhamphocælus brasilius, LINN

THIS is a native of Brazil, and is consequently widely known as the Brazilian Tanager. The general colouring of the male is bright carmine; the wings, tail, and thighs, dull black; the beak black, with a white patch at the base of the lower mandible. Length 7½ inches; legs dark brown; iris orange-brown.

The female is brown, with the hind part of the back and the abdomen rosy reddish.

Mr. W. H. Forbes, in his article on the *Birds of Pernambuco*, says: "I met with this splendid bird on the road between Iguarassu and Olinda, and subsequently found it abundantly, in favourable situations, nearer Recife, as well as at Parahyba, and all along the line of railway

as far as Catende. It seems, however, an essentially low-country bird, and as the country rises in the interior, disappears. This bird goes about, like several of the other Tanagers, in small parties, composed chiefly of immature or female birds, so that the number of those seen in the gorgeous crimson and black dress of the adult male is comparatively small. It is always to be found in the low bushes and vegetation that grow about the lower slopes and bottoms of the valleys in the neighbourhood of water, and is never, according to my observation, found in gardens or the virgin forests. It has a quick, rather loud, sharp, chirping note, of a single syllable, repeated several times in sharp succession, which one soon gets to recognise. The Brazilian name is 'Sanger de Boi,' *i.e.*, Ox's blood, from the brilliant crimson of the plumage of the male."

Dr. Burmeister and Carl Euler are in agreement with Forbes as regards the localities haunted by the Scarlet Tanager, the former stating that it affects the undergrowth of marshy districts and the neighbourhood of rivers, or the river valleys themselves; but always wet ground covered with scrub; and the latter, that its favourite haunts are the marshy situations in low-lying country, on which account it is far more numerous in the alluvial plains of the lake shores than in the mountains.

It keeps together in small colonies, but not crowded together; one only sees isolated examples hopping about in the scrub, sometimes males, sometimes females. The bird does not visit the higher mountain valleys.

Burmeister found the nest in similar situations in the marsh, and always low down. Carl Euler says he found it in tufts of reedy grass, in which it formed a large mass, partly hidden by the overhanging blades, on the ground of hillocks enclosed by the marsh. The nest is constructed of dry leaves of reeds and rushes, (Burmeister speaks also of moss), carefully woven and twisted together; but, nevertheless, from a lack of binding materials, so loosely compacted that, when taken, it frequently falls to pieces. It is cup-shaped, and the flattish depression is lined with flowering stems.

The eggs are from two to three in number, of a beautiful blue-green colour, shining and smooth-shelled. The marking consists of scattered, sharply-defined, pitchy blackish spots and dots, which are distributed over the entire surface, and interlined with very fine scrawling: those obtained by Burmeister appear also to have had a black zone on the blunt end.

A friend of mine, Mr. J. Housden, of Sydenham, had a fine male example of this Tanager for seven years; he speaks of it as a hardy

bird, and easy to keep in health; it seems to have eaten almost any kind of ripe fruit, and Mr. Abrahams would be shocked to hear that it usually had some grocers' currants mixed with its soft food. Mind, I am not recommending these, but merely stating the fact that this individual specimen ate a good many in the course of a year without apparent injury. I am afraid that most amateur bird-keepers are sinners in this item of currants; I have given them to Blue-birds, and other fanciers give them to Spectacle-birds, for all of which species Mr. Abrahams assures me they are unquestionably bad.

Herr Wiener says that "this beautiful bird will live for years in a roomy cage, under favourable circumstances. He has been bred repeatedly and reared successfully by a lady in Belgium, but not as yet elsewhere."

I will not repeat what Herr Wiener says respecting the food for this bird, because his receipt contains materials which, to my mind, are worse than currants. I shall avoid the latter whenever I obtain Tanagers, and give them, as Mr. Abrahams recommends,—his food with stale bread-crumbs, preserved yolk and potato, ripe pears, bananas, and sweet oranges; also a few mealworms and caterpillars when obtainable.

Bates, speaking of the two commonest Tanagers of Pará, one of which is a species of *Rhamphocelus*, says:—"In their habits they resemble the common House-Sparrow of Europe, which does not exist in South America, its place being in some measure filled by these familiar Tanagers. They are just as lively, restless, bold, and noisy; their notes are very similar, chirping and inharmonious; and they seem to be almost as fond of the neighbourhood of man. They do not, however, build their nests on houses."

Dr. Russ describes the Scarlet Tanager as unsociable and malicious in bird-room and aviary; it also steals the callow young out of nests. Hitherto successfully bred in 1877 by the Princess Croy, in her castle Roeulr, at Hainaut, Belgium. The male had already moulted three times, and each time had recovered his splendid colouring. The Princess kept the female two years. The male danced round the female flipping tail and wings with shrill screams of delight. The latter uttered only a soft, chirping sound. The pair carried a little nesting material into an open basket nest in a protected corner of the garden. *Laying* two eggs, bluish-green, (according to Burmeister, Prince Wied, and others, spotted and splashed with dark colouring); the hen alone incubated, thirteen days; young reared by both. *Young plumage* blackish brown, breast and back reddish brown. Old and young were very tame. They ate a quantity of mealworms, cut up small, and mixed with fresh

ants' cocoons and hard-boiled yolk of egg; they also sought for all kinds of insects in the garden, especially little worms, and also stole the young of Wagtails as soon as they were out of the egg."

Dr. Russ then states, with some appearance of doubt as to its credibility, that "a male, in the possession of Mrs. A. Musil, is tame, and in addition to its harsh notes, utters clear Thrush-like sounds and 'a beautiful soft song, rich in variations, somewhat resembling that of the Robin' (here the Doctor inserts a ?); it moults regularly every year."

In his work, *Die Fremdländischen Stubenvögel*, Dr. Russ further observes:—"One of those birds which were known even to the oldest authors, one finds reference to them by Aldrovandi, and divers accounts even much earlier, down to the time of Buffon, in which indeed much error and confusion are the rule, whereas concerning the proper natural history of the bird scarcely anything certain is given. As for the rest, Belon had already stated that, in his time, merchants brought Red Tanagers in great numbers from Brazil into the trade, and, moreover, in order to utilize them for garnishing clothes and other ornamental work. One therefore perceives that even then human vanity and greed of finery caused such birds to be slaughtered for their gratification. Buffon hints, one may conjecture that before such barbarous extermination, they must have been considerably more abundant in their native country. Later bird-students confound many kinds of red birds together, and, for instance, even place the Virginian Cardinal among the Tanagers. Then again, more recently, when the fancy for living birds commences, the Purple Tanager has entirely vanished; neither Bechstein nor Bolle have given an account of it, and the dealers' catalogues, up to the seventieth year, had, moreover, not indicated it; even in the Zoological Gardens, of London, a single male was first received in July, 1863."

Mr. J. Housden's fine example of this species, which never had a day's illness, was kept in a large flight-cage, where it was able to take plenty of healthful exercise. As regards food, it was treated similarly to other soft-food eaters in my friend's collection, having potato, bread, sweet biscuits, and any fruit which chanced to be readily procurable, as well as soaked ants' cocoons. I have two fine healthy males in my own collection which I feed on my regular soft-food mixture and banana: they will not touch oranges at present.

THE TYPICAL FINCHES.

FRINGILLINÆ.

D^{R.} SHARPE thus distinguishes these birds from the Buntings:—
“Cutting edges of mandibles conterminous or nearly so, mandibular angle at the chin very slightly indicated.”

Mr. Seebohm, in his *History of British Birds*, unites the *Coccothraustinæ* and *Fringillinæ*, as also does Howard Saunders in his *Manual*.

Of this sub-family, the British Museum *Catalogue of Birds* enumerates over one hundred and seventy species, comparatively few of which are imported. Excluding the strictly European species, the number available as foreigners would be about 155, many of which have nothing to recommend them to aviarists, either in colouring or song; whilst many others, which would be acceptable, are either exceedingly rare, or difficult to obtain alive.

The most typical Finch, inasmuch as it is the type species of the genus *Fringilla*, is our European Chaffinch. This bird has a near relative, *F. maderensis*, which Mr. Abrahams imported, at my suggestion, early in 1896, and of which he very kindly sent me a pair. During 1896 I heard what I supposed to be the full song, which was inferior to that of the European bird; but in 1897 it became distinctly superior, being longer and more varied.

Probably the greatest check to the importation of typical Finches is that, with few exceptions, they are too expensive for the majority of bird-lovers. This is not the fault of the dealers, but of the foreign catchers, who do not seem to make an effort to obtain any particular birds, but simply export what chance to come to their nets, traps, or limed twigs. If specially bribed to do so, probably they would exert themselves; the foreign Siskins, Serins, etc., would then come in great numbers, would become cheaper, and thus be within the reach of all.

THE SCARLET ROSE-FINCH.

Carpodacus erythrinus, PALL.

STRICTLY speaking, perhaps this beautiful bird ought not to be included in the present work, inasmuch as two examples have been captured in Great Britain; one on the Brighton Downs in 1869, the other at Hampstead in the succeeding year. It is, however, one of the birds usually offered for sale in the market of Calcutta, and consequently is tolerably frequently imported in consignments of Indian birds.* Its range extends through Northern Europe and Siberia to Kamtschatka, to the south of which localities it winters, especially in India and the Burmese Peninsula. To Western Europe it is an occasional visitor.

There are two objections to this as a cage-bird:—after the first moult all the rose-colouring disappears, and is replaced by yellow; and there is nothing specially beautiful in its song: indeed a specimen which my sister, the late Dr. Fanny Butler, brought me from India, never got beyond its rather plaintive, though musical call-note.

The prevailing colour of this Rose-Finch is crimson, most brilliant on the head, throat, breast, and hinder part of the back; on the abdomen it is bright rose, which fades into buffish white on the under tail-coverts. The wings and tail are brown, with vinous margins to the feathers. Length $5\frac{2}{3}$ inches. Beak and legs fleshy brown; iris hazel.

The general colour of the hen is brown, darkest on the crown, nape, wings, tail, throat, and breast; the feathers of the head also have dark centres; the back and rump are slightly olivaceous; the tips of the wing-coverts, the margins of the innermost secondaries and of the throat and breast feathers, with the remainder of the under surface, are paler.

Mr. Seebohm says of this species:—"The song of the Scarlet Rose-Finch is a very striking one, and not to be confused with that

* Moreover, I strongly suspect that the supposed British examples were merely liberated cage-birds.



SCARLET ROSE-FINCH
(*Carpodacus erythrurus*.)

of any other bird. It is a loud, clear whistle—tû-whit', tû-tû'-î. It does not require a great stretch of imagination to fancy the bird says, 'I'm pleased to see you,' the word 'see' being strongly accented and slightly prolonged. The song is never varied, but is sometimes repeated twice in rapid succession. When it is heard, the bird may usually be seen perched conspicuously on the top of a bush or low tree. The marshy forest banks of the great Siberian rivers are a very favourite resort of this bird; and in the Baltic provinces, where it is common, and in the valley of the Upper Volga, it is described as frequenting willows and other low trees in marshy districts.

The food of this bird consists of seeds of various kinds, grain, and the buds of trees. In spring it eats insects, and in autumn, berries and other fruit.

The nest of the Scarlet Rose-Finch is built in the fork of a small bush, or amongst climbing plants not far from the ground. It bears little resemblance to the nest of a Finch, and might easily be mistaken for that of a Warbler. It is composed of dry grass-stalks, and lined with horse-hair. It is rather deep, and very neatly and carefully made, although it is so slender as to be semi-transparent when held up to the light. The inside diameter is two inches and a quarter. Five is the usual number of eggs, but sometimes only four are laid, and occasionally as many as six. They vary in length from '9 to '73, and in breadth from '63 to '55. The ground colour is greenish blue, not so pale as that of the eggs of the Bullfinch; the spots are also fewer, smaller, and blacker than in typical eggs of the latter species. They are smaller than the eggs of the Bullfinch, and are not likely to be mistaken for the eggs of any other bird.

In the winter the Scarlet Rose-Finch ranges over the plains of India, sometimes in large flocks, but more generally in small parties, frequenting alike the groves, the gardens, and the jungle. At this season of the year its habits much resemble those of the true Finches. In Gilgit they breed at an elevation of 10,000 feet above the level of the sea, and fresh eggs have been obtained there in the second half of July. Early in September they leave the hills and come down into the valley, and soon migrate to their winter quarters. Captain Butler, describing its habits in Rajpootana, west of Scinde, says that it is very fond of the watery nectar contained in the flower of the Indian coral-tree, (*Erythrina indica*), upon which tree the bird is always found when it is in blossom."

I found this bird tame and gentle as a cage-bird; indeed I paired it up with a hen Canary, in the hope of breeding mules; but, in all

probability, my example was not in vigorous health, for at the approach of winter I lost it. A healthy specimen, in full song, would undoubtedly breed with a Canary, since the allied Purple Finch has produced mules with that Serin.

On the journey from India, the Scarlet Rose-Finch is fed upon canary and millet; and these seeds, with a little fresh green food and a few mealworms, suit it well in confinement; though they may be improved on, as we shall see.

Jerdon says of this species, (which he calls "The Common Rose-Finch") :—"In March many are taken in fine breeding livery. In the extreme south I have chiefly seen it in bamboo jungle, feeding on the seeds of bamboo on several occasions, and so much is this its habit that the Telugu name signifies 'Bamboo Sparrow.' In other parts of the country it frequents alike groves, gardens, and jungles, feeding on various seeds and grain; also not unfrequently on flower buds and young leaves.. Adams states that in Cashmere it feeds much on the seeds of a cultivated vetch. Now and then it is seen in large flocks, but in general it associates in small parties. It breeds in Northern Asia. It is frequently caught and caged, and has rather a pleasing song. Blyth says the '*Tuti*' has a feeble twittering song, but soft and pleasing, being intermediate to that of the Goldfinch, and that of the small Red-pole Linnet, the call-note much resembling that of a Canary-bird.' "

Latham called this the "Tooty Finch," a modification of the Hindostani name "Tuti," or "Surkhar Tuti." In Nepal, according to Hodgson, it is "Amonga Tuti," and in Silhet, according to Hamilton, "Chota Tuti."

In a note published by Jerdon, in the *Madras Journal*, he says :—"I have observed it several times in large groves of trees in the northern part of the table-land. It associates in flocks of various numbers, and devours various grains, especially Jowaree, (*Andropogon Sorghum*, Linn.), and also rice; and in default of these, various other grains, seeds, and even flower-buds and young leaves of trees. It is occasionally caught and domesticated on account of its song."

Now, this gives one a clue to the best seeds on which to feed the Scarlet Rose-Finch, namely :—white millet and Paddy rice; to these canary-seed, as already shown, makes a good addition, and I should include oats and sunflower-seeds. Abrahams' food would doubtless be beneficial when it was moulting; but, unless the bird could be turned loose in a spacious aviary, no soft food of any kind should be regularly supplied, as it then tends to produce an excess of fat.



SAFFRON FINCH
(*Sycalis flaveola*.)

Dr. Russ says:—"A pair in my bird-room brought up three young ones. *Nest* placed tolerably high up in a thick bush against the wall, formed of bents, flowering heads of reeds,* soft strips of paper and thread, lined with horse-hair. *Time of incubation*, twelve days. *Nestling down*, delicate bluish. *Young plumage* above, brown-grey, tinged with greenish; short tail, dull yellowish green-grey; under body dull brownish-white, spotted with fawn. After the first moult, slightly red; fully coloured for the first time in the third or fourth year."

THE SAFFRON FINCH.

Sycalis flaveola, LINN.

LATHAM calls this species the "Brazilian Bunting" and in the song of this and the other species of *Sycalis*, and the fact that they walk, instead of hopping, they certainly approach the Cardinal Buntings: they also resemble *Emberiza* in this, in their violent courtship and their love for insect food. Even the fact that they place their nests in holes, is not altogether opposed to this resemblance; since the nests of *Emberiza* are not infrequently placed in hollows or niches in the sides of chalk-pits or steep banks;† the eggs, however, more nearly resemble boldly-marked examples of those of the genus *Passer*, and this has probably induced some writers to designate them as Sparrows, in spite of the fact that the birds themselves more nearly resemble the Serin Finches.

The Saffron Finch is found from Southern Brazil to Bolivia, in Peru, Ecuador, Colombia, Guiana, and Venezuela.

The cock bird in adult plumage is of a bright greenish yellow colour, the feathers of the mantle and upper back streaked with dusky lines; the wing-feathers blackish, edged with brighter or duller yellow;

* "Rohrfahnen," literally reed-banners.

† *Sycalis arvensis* nests on the ground, under or near a tuft of high grass.

the tail-feathers blackish, bright yellow externally and pale yellow internally; the crown of the head yellow, bright orange in front; the cheeks and throat yellowish orange; under parts bright yellow, tinged with green at the sides. Length $5\frac{3}{10}$ inches; the beak horn-brown, the lower mandible paler; legs brownish flesh-coloured; iris greyish-brown.

The hen is usually much duller than the male, though very old hens approach the males in their bright colouring; when tolerably young the colouring above is pale greenish yellow, more ashy on the mantle and front of the back, the feathers of which are brown, centred with blackish shaft-lines; the posterior portion greenish yellow, without markings, but the tail-coverts somewhat dusky in the centres; lesser wing-coverts yellow, median and greater coverts dull brown, with yellow margins and whitish tips; flight feathers dull brown, edged with yellow, excepting the inner secondaries, which have whitey-brown margins; the tail-feathers also dull brown, with yellow margins; crown of head greyish-yellow, slightly more orange on the forehead, the feathers with dusky shaft-lines; lores, face, and throat pale greyish, the latter tinged with yellow; chest yellow; remainder of body below whitish in the centre, yellow with ill-defined dusky streaks at the sides; quills dusky below, with the inner webs broadly edged with yellow. Length $5\frac{3}{10}$ inches.

A pair of this species which I had for some years in one of my aviaries never attempted to breed until the winter of 1892-3, when the hen, which by that time had acquired the bright colouring of the cock, built a nest and died egg-bound: a pair received early in 1893 went to nest almost immediately, and the hen laid and began to sit steadily, the cock-bird feeding her from the crop at regular intervals throughout the day; but either a *Liothrix*, in the same community, stole the eggs, or they got accidentally broken, for I found the shells on the floor of the aviary. Since then I have bred this species freely, both in cage and aviary. Both parents feed the young from the crop, exactly in the same manner as Canaries.

Herr Wiener, in Cassell's *Cage Birds*, says:—"The Saffron Finch, sometimes called Brazilian Canary, is a wonderfully hardy bird, considering the climate of the land of his birth. I found him thrive on very simple food, and have seen broods of young Saffron Finches leave the nest at Christmas, as well as in spring, summer and autumn; in fact, they seemed to breed all the year round in my aviary."

"The love-making of a pair of Saffron Finches is a very peculiar affair, consisting in either the male bird persecuting the hen and punishing her severely if she be not quite ready to receive his advances,

or if the male should happen to be of a retiring disposition, the female may be seen pursuing him vigorously. Then there is sure to be a family quarrel before the beginning of each brood, and these domestic feuds frequently become so inveterate as to upset the equanimity of all the other smaller inhabitants of an aviary."

In the case of my own first pair of this species, each alternately pursued the other; in fact it was a kind of game like "hide and seek," the cock bird sitting in a Canary nest-box, whilst the hen crept into a German Canary-cage, on the opposite side of the aviary, each earnestly watching the other. Suddenly the cock bird would sweep across towards the hen, but she, equally on the alert, would dive through the front opening just in time to avoid him, and take up her position in the box he had vacated; then she would be the pursuer, and the same manœuvre would be repeated over and over again until they wearied of the sport.

I have proved that the Saffron Finch may easily be bred in a large box-cage (about three feet long by two high and two deep), provided that a good-sized deep box is fixed up in one corner, and plenty of hay, moss, and feathers supplied. The favourite nesting-box of this, and of most Finches, is one known as of the cigar-box pattern; in fact, for the smaller species, a full-sized cigar-box, with half the lid sawn off and the other half nailed down, or, better still, with only one-third removed, makes a very good cradle for the construction of a nest. The box must be hung up perpendicularly, with the opening in front; and it is a good plan to half fill the lower, or enclosed portion, with hay.

Mr. Abrahams strongly recommends his woven basket-nests, which certainly have a neater appearance in an aviary than the oblong wooden boxes described above; moreover, birds are very fond of roosting and even laying in them; but, personally, I was never successful in obtaining any young ones from these nests, though it is quite possible that, in this respect, I may be an exception to the general rule.

In its native country the Saffron Finch, and some of the other species of its genus, build their nests in hollows in decayed trees, or the deserted nests of other birds; but, in the neighbourhood of towns, they construct large nests lined with horse-hair, in holes in walls. Their eggs are usually five in number, greenish white, spotted more or less thickly with sharply-defined blackish olive and pale lavender spots. In form these eggs are smaller and rounder than those of our Sparrow.

Though the genus *Sycalis* is placed next to *Serinus* in the most

recent classification, the Saffron Finch, if associated in very small aviaries with Canaries, makes himself unbearable to them, driving them about and pulling out their feathers wholesale; in a spacious aviary, however, he never molests them; indeed, excepting when breeding, and then only when interfered with or attacked, he seems tolerably amiable. He should not, however, be associated with Ornamental Finches.

In 1893, I received a near relative of the Saffron Finch from the Argentine Republic, viz., *Sycalis pelzelni*. This species is very like the common one, but smaller, its under parts entirely yellow, with blackish streaks on the flanks: the two species have precisely similar habits in the aviary, and the same untiring energy in singing their scroopy, Corn-Bunting-like song. In one respect, indeed, it does not resemble the song of that most unmusical performer, for it seems to have no full stop in it, but goes on until the vocalist is weary, and starts again as soon as he has rested.

This song is thus graphically described by Mr. W. H. Hudson, in Sclater and Hudson's *Argentine Ornithology*, p. 66:—"After a hurried prelude of sharp chirps and trills, he pours out a continuous stream of sound, composed of innumerable brief notes, high and shrill as those of a bat, wounding the ear with their excessive sharpness, and emitted so rapidly that the whole song is more like that of a cicada than of a bird. The piercing torrent of sound is broken at intervals by a low, grave note, or half-a-dozen sharp rapid notes in a lower key, which come as an agreeable relief."

Canary-seed, white millet, millet in the ear, fresh groundsel, and insects, are suitable food for Saffron Finches in captivity; when breeding, a mixture of Abrahams' food with mashed potato and bread-crumbs will be gratefully accepted. In the winter green food should not be given, as it is then often frost-bitten and half decayed, though lettuce or rape seedlings, grown in boxes in a greenhouse, would not be injurious.

I think it is a pity that Sclater and Hudson have adopted the local name of "Yellow House Sparrow" for *S. pelzelni*, because it gives a false idea of the affinities of the species. Hudson evidently does not approve of the name, though he uses it, for he says "The Yellow 'House-Sparrow' as this species is called, is the town bird of Buenos Ayres, but does not multiply greatly, nor is he familiar with man, like his rough, sooty-plumaged, far-away London relation."

The following very interesting account of the species from Mr. Hudson's pen is worth quoting here:—"In towns they build in walls,

like the English Sparrow; in country places they always select the domed nest of some *Dendrocolaptine** species to breed in. Possibly in some districts where I have not been, this Sparrow selects other breeding sites; my experience is that outside of a town it never lays anywhere but in some domed nest, and at home I frequently put up boxes for them in the trees, but they would not notice them, though the Wrens and Swallows were glad to have them. Sometimes they make choice of the large fabric of the *Anumbius acuticaudatus*, called Lenaters in the vernacular; but their claim to this nest (even when the Lenaters are out of it) is frequently disputed by other species which possess the same habit as this Sparrow, but are more powerful than he. Their favourite breeding-place is, however, the solid earthen structure of the Oven-bird; and it is wonderful to see how persistently and systematically they labour to drive out the lawful owners—birds so much larger and more powerful than themselves. Early in Spring, and before the advent of the Tree-Martins, the pair of Sparrows begin haunting the neighbourhood of the oven they have elected to take possession of, usually one pretty high up in a tree. As the season advances their desire towards it increases, and they take up their position on the very tree it is in, and finally a particular branch near the oven, commanding a good view of the entrance, is chosen for a permanent resting-place. Here they spend a great portion of their time in song, twitterings and loving dalliance, and if attentively observed, they are seen with eyes ever fixed on the coveted abode. As the need for a receptacle for the eggs becomes more urgent they grow bolder, and in the absence of the owners flit about the oven, alight on it, and even enter it. The Oven-bird appears to drive them off with screams of indignation, but the moment he retires they are about it again, and even when it contains eggs or young birds, begin impudently carrying in feathers, straw, and other materials for a nest, as if they were already in undisputed possession. At this stage the Tree-Martins (*Progne tapera*) perhaps appear to complicate matters; and even if these last comers do not succeed in ousting the Oven-birds, they are sure to seize the oven when it becomes vacant, and the Sparrows, in spite of their earlier claim, are left out in the cold. But they do not take their defeat quietly, or rather, they do not know when they are beaten, but still remain to harass their fellow-pirates, just as they did the Oven-birds before, bringing straws and feathers in their beaks, and when forced to drop these materials, and chased from the neighbourhood with great noise and fury by the Tree-Martins, it is only to

* Birds having habits similar to the Tree-Creeper. A.G.B.

return undaunted in a few minutes, bringing more straws and feathers.”* *Arg. Orn.*, 1, p. 67.

The eggs, five in number, are said to be thickly spotted with deep chocolate-brown.

Dr. Russ says that the Saffron Finch will either build “in a box, or, if it has the chance, in a Weaver-bird’s nest, or that of any other pair of birds. *The nest* is negligently formed of bast, strips of paper, agave-fibre, and fine shavings, and thinly lined with animal or vegetable wool. *The hatch* variable, though common. *Eggs* white, spotted like those of a Sparrow. *Time of incubation*, “fourteen days.” “At least three broods yearly; the first in a heated bird-room, already in February. Nests also at a lower temperature successfully; is exceedingly fruitful (20-24 young). Breeding profitable. First bred by Dr. Max Schmidt, of Frankfort, on Maine; since then by many.” “Breeds in spacious cages, or in bird-room occupied by Weavers, Parrots, etc.”

I found that the nests built by my birds in boxes were piled up above the opening almost to the wooden top, leaving only just room for the birds to slip in and out; they were strongly-formed saucer-shaped nests, on a massive foundation of all kinds of materials—straw, hair, roots, feathers, moss, aloe-fibre, etc.—and were not domed or overarched in any way: to all intents and purposes they were typical Finch nests.

Although *Sycalis* takes possession of domed nests, it does not follow that it ever so far departs from the usual habits of its allies as to construct one, though some writers have asserted that it does so. If this were the case, it would serve more clearly to separate it from the Sparrows, which, as I have already pointed out, leave the top of the nest open, though, at times, the opening is not placed exactly over the centre.

As regards the danger of keeping Saffron Finches with smaller and weaker birds, Dr. Russ observes:—“As these birds, not simply by the restlessness of their pursuit, but also by other kinds of disturbances, molest all the rest, it is easy to judge what enormous danger they occasion in the bird-room. Also, without cause, they make a convenience of the nests of other birds; then, though they have not themselves taken any steps towards nest building, but have merely wandered about in a desultory manner with building material, such as thin straws, they nevertheless, by their impetuous behaviour,

* Contrary to the above habit of *Sycalis pelzelni*, our House-Sparrow, when out in the open country, usually builds a huge purse-shaped nest for itself, in the branches of a tree; sometimes, though less frequently, it builds in a hollow tree like the Tree-Sparrow: there is therefore no excuse for using the trivial title of “Sparrow” for birds not nearly related to *Passer*. A.G.B.

disturb many sitting birds and scare them from their nests. Also in addition they proved themselves very malicious towards their smaller associates, since they first seized a Tiger Finch (*Amaduvade*) by the tail, and left him sprawling; then dragged up a little Magpie* (*Spermestes*) by the wing out of its nest, or fell upon another unsuspecting little Ornamental Finch, sunning itself at the window, with grievous blows of the beak. These provocations may have given great pleasure to the Brazilians, but to the tiny victims they were in every respect less of a joke, and I was obliged to put an end to the matter in this way, that I took away the peace-disturbers and shut them up in a dwelling-room with a pair of Red Cardinals. Yet even these birds, though altogether very contentious and nearly double as large, which I, moreover, had banished from the bird-room on account of their unsuitability, were not rarely attacked at the food-basket by the male, and were obliged to leave the field clear to his impetuosity."

Knowing already, from experience, the tendency of this species to bully its weaker associates, I made up my mind when my bird-room aviaries were constructed to keep Saffron Finches only with birds well able to protect themselves, the only apparent exceptions which I have made to this rule are represented by the introduction of a Grey Singing Finch, a pair of Green Singing Finches, and about half-a-dozen Canaries into the same aviary. However, these they have never interfered with, nor have they quarrelled with any bird excepting a Nonpareil, who probably deserved the punishment which they inflicted on him.

In 1894, and the two following years, I bred many Saffron Finches, both in cage and aviary, without the least trouble; those in the flight-cage being bred by the pair mentioned on page 20; but towards the end of 1896 the hen of this pair concluded that she had brought up enough families, and resisted fiercely every attempt of the male bird to approach her. At length he lost his temper, and knocking her down, pecked at her eyes and tore her scalp until she was covered with blood: I then separated them, but the unfortunate victim was quite blind for a fortnight, and died at the end of a month. Since then I have been content to breed this pretty little savage in one of my bird-room aviaries, where (however), many of the nestlings fall victims to Manyar Weavers.

Illustrations from live specimens and skins in the author's collection.

*Probably with special reference to the Pied Mannikin: though Russ tells us that the species of *Spermestes* (in its wider signification) are so called by dealers in Germany.

THE CAPE CANARY,

Serinus canicollis, SWAINS.

UNDER the above trivial name several species of Serin Finches are sold by various dealers; but *S. canicollis* is the species properly so designated. Other species which have been so called are *S. batyracea* (now called *S. flaviventris*) and *S. sulphuratus*. Owing to the fact that Herr Wiener, in Cassell's *Cage Birds*, confounded *S. flaviventris* with *S. icterus*, I formerly supposed the larger bird to be the Cape Canary, and described it under that name in my *Popular Foreign Cage Birds* (*Feathered World*, 1892, p. 18.)

The cock Cape Canary above is greenish, tinged with grey, the feathers of the shoulders and back with ill-defined darker centres; the lower back and upper tail-coverts more distinctly yellow and unmarked; the tail feathers blackish, with yellow outer margins; the wing-coverts greenish, with yellower edges to the median and greater coverts; flight feathers black with yellow edges, wider on the ends of the secondaries, which are narrowly tipped with greyish; head above golden yellow, greenish in the centre; back and sides of neck pale grey, spreading as a collar over the shoulders; ear-coverts grey; lores dusky; eyelid, cheeks, throat, and under surface of body golden yellow, brighter on the chest and front of abdomen; sides of body slightly greenish; vent white; under tail-coverts yellow; under wing-coverts and axillaries greyish, edged with yellow; flight feathers below dusky, with greyish inner edges. Length $5\frac{3}{10}$ inches. Beak pale horn-colour, darker on the upper mandible; legs greyish brown; iris dark brown.

The hen is much duller than the cock, all the yellow colouring paler, and the upper parts browner.

This is a native of South Africa, and is a fine song-bird; it pairs readily with the ordinary Canary (*Serinus canaria*), which is now regarded as a race of the Serin-Finch (*Serinus serinus*), a friend of mine having succeeded in obtaining two mules at the first pairing of these distinct species.

Messrs. Sharpe and Layard say that:—"The Cape Canary is a



CAPE CANARY, (*Serinus canicollis*.)
SULPHUR-COLOURED SEED-EATER, (*Serinus sulphuratus*.)

common bird throughout the colony, congregating in flocks on the open and ploughed lands, and feeding on grain and seeds of all kinds. It sings very sweetly, and breeds in captivity with the true Canary, the mule birds being very handsome, and, we are told, again producing with either the yellow bird or one of its own species."

"The nest of the Cape Canary is generally constructed in a low, thick bush, and is of a cup shape, formed of hair, moss, and feathers. The eggs, three to four in number, are white, streaked and spotted at the obtuse end with purplish brown; axis, 9''; diam. $6\frac{1}{2}$ ''". Mr. Rickard records it from East London and Port Elizabeth, being most plentiful at the latter place; and Messrs. Butler, Fielden, and Reid record it as common both in winter and summer in Natal, breeding in October and November.

An example, which Mr. Abrahams gave me, of this species was unfortunately too old to breed with, but it sang industriously a monotonous but not unpleasant modulated trill, somewhat reminding me of the production of a Hartz Canary.

Dr. Russ says that the Cape Canary has hitherto (*i.e.* up to 1887) not been bred in confinement; but that Dr. Franken bred mules between it and the hen of the Yellow-fronted Siskin (St. Helena Seed-eater), and Dr. Frenzel with a Canary hen. He thinks it is to be regretted that this pretty and graceful "Siskin" is hard to obtain (which seems a curious regret to a Londoner, who can generally buy it, if he is willing to pay the required price); that mentioned by Russ, "12-15 marks for a pair," seems low enough. The song, he says, is pleasant, Lark-like, and diligently persevered in.

In confinement, Canary-seed, white millet, spray-millet, and, in the summer time green-food, are suitable for the Cape Canary. If an attempt is made to breed with a pair, a bush of some kind, plenty of soft building materials, and some form of egg-food should be provided.

In his larger work, Dr. Russ gives, practically, no additional information respecting this species; he again laments its rarity in the market, and tells us that many travellers are unanimous in saying that in the South African colonies this bird is frequently kept in cages as being an admirable singer.

THE SULPHUR-COLOURED SEED-EATER.

Serinus Sulphuratus, LINN.

THIS species has been imported by Mr. Abrahams, but is less frequently received than the Cape Canary: it is said to sing well. The cock-bird above is of a yellowish-green colour, becoming more yellow on the lower back, which is also unmarked, whereas the shoulders and front of the dorsal region are streaked with blackish; the lesser wing-coverts yellowish-green, unmarked, median and greater coverts, flights, and tail-feathers, blackish bordered with yellow; upper tail-coverts dull yellow, with dusky shaft-streaks; lores dusky, surmounted by a broad golden yellow eyebrow: feathers round eye and ear-coverts dull greenish, succeeded by a broad golden yellow band; cheeks dull greenish, with a yellow spot at the base of the lower mandible; throat golden yellow; the sides and front of neck and the breast pale yellowish green, which colour also extends along the sides of the body; lower breast and abdomen golden yellow; under wing-coverts and axillaries yellow; flights below dusky with greyish inner edges. Length six inches. Beak yellow, the upper mandible dusky, legs dusky, iris dull hazel. The hen is slightly duller than the cock, with less-defined yellow streak on the face.

S. sulphuratus inhabits South Africa, from the Cape through Natal and the Transvaal to the Masai country in East Africa. According to Ayres this bird is tolerably common at Natal, and feeds upon the hard nutty seeds of small berries, common to many of the shrubs there; they appear to crack the shells of these seeds with ease and then devour the kernal.

"It is apparently not uncommon in the Swellendam district, extending as far westward as Caledon. It is also plentiful at Nel's Poort, where we took the eggs in some abundance."

"The nest is usually placed in a low bush, often only a few inches from the ground; it is very compact and cup-shaped; the eggs generally four in number are white, slightly tinged with green, and dotted at the obtuse end, mostly in an annular form with intensely

dark or light purple spots, with here and there a wavy streak, axis, 10", diam. 7".

The colonists call the Grosbeak "Geel Saysie." Layard.

Russ says that this bird is the image of the St. Helena Seed-eater, but considerably larger and more powerful, almost equal to a Bullfinch. It would also be a welcome addition to the bird-room and cage; but it is extremely rare and only brought home singly.

Knowing what I do of the spiteful fits which occasionally come over the St. Helena Seed-eater, I should recommend amateurs to be careful to associate the Sulphur-coloured Seed-eater with those birds which are strong enough to defend themselves against him. Still, it does not follow, that, because he is big and powerful, this Seed-eater is necessarily spiteful. I once possessed a White-throated Seed-eater, a great ugly brute of a bird, with almost the face of a Grosbeak, but in character it was as mild and gentle as any bird I ever had: according to Russ it is a lovely singer, but my bird never paid for its keep; consequently, though a rare Seed-eater, I cannot say I greatly regretted its ultimate death.

Food similar to that recommended for the Cape Canary. Mr. Abrahams wrote to me in 1893 that he had a specimen of this species: but at the time I was not feeling very wealthy, and knowing that a bird so rarely imported would in all probability be expensive, did not trouble myself more about it: indeed, had I purchased this Serin, I must have turned it in with my St. Helena Seed-eater and Green Singing Finches; and in all probability they would have quarrelled: it could not have been kept in a separate cage, for all, excepting the small Canary-cages (which are only used for sick birds) were occupied either by birds paired for breeding, by Waxbills, Cardinals, or Canaries, Linnets and Goldfinches in company.

THE ST. HELENA SEED-EATER.

Serinus flaviventris, SWAINS.*

[NHABITS South Africa, and, according to Mr. Abrahams, also occurs in a wild state in St. Helena into which island it has doubtless been introduced.

The general colour of the upper surface in the cock bird is yellowish green, with blackish shaft-streaks, the rump more distinctly yellow, and unmarked; upper tail-coverts dull yellow, blackish centred; tail feathers blackish, with yellow edges; lesser wing-coverts greenish yellow; median and greater coverts blackish, edged with yellowish green; bastard wing and primary-coverts blackish, fringed with dull yellow, flight feathers blackish, edged with yellow, most broadly on the secondaries; the forehead and broad eye-brow golden yellow; lores dull greenish; feathers round the eye yellow, as also those below it; ear-coverts yellowish green, cheeks bright yellow; a dull greenish streak from below the eye along the cheeks, leaving a golden yellow patch on the front of the ear-coverts, under surface of body golden yellow, as also the under wing coverts and axillaries; flights below dusky, with greyish inner edges. Length 5½ inches. Beak horn-coloured; the upper mandible dusky; legs dusky; iris hazel.

The hen is much duller and browner in colouring, the back much more heavily streaked with blackish, all the yellow-colouring either replaced by green as on the rump, paler yellow as on the edges of the wing and tail feathers, or greyish white as on the abdomen and under sides of the flights; the breast and flank streaked with smoky brown. Length 5 inches.

This exceedingly beautiful Serin has a really fine song, only surpassed by that of its tiny relative the Grey Singing Finch, to which indeed it bears a considerable resemblance, excepting that it is louder, less sustained, and far more rarely heard.

In 1892, finding that my St. Helena Seed-eater, the hen of which

* The scientific name *S. butyracea* has now been set aside to avoid confusion, Linnæus having given the same specific name to two nearly allied species of Serins, referred by him to the genera *Loxia* and *Fringilla* respectively.



ST HELENA SEED-EATER, (*Serinus flaviventris*) ♀
GREEN SINGING-FINCH, (*Serinus icterus*.) ♂

had died the previous year, was making advances to the hen Green Singing Finch, and seemed likely to kill the cock of that species, I captured the former and paired him with a large hen Canary, in a spacious breeding-cage. This he resented, and led the Canary such a life that I changed the hen twice before I could satisfy him; at last, when I had found a Canary with which he would live without half denuding her of her feathers, she must needs catch a bad cold, necessitating her removal.

After this failure to breed mules, I captured my pair of Green Singing Finches, restored the St. Helena Seed-eater to his aviary, and hoped to breed *S. icterus*: it was no good, the pair lived amicably enough for a year in the breeding-cage, neither attempting to breed nor even singing; so, in 1893, I put them both back with their former enemy. Curiously enough, the tables were now completely turned; the smaller now attacked the larger bird, and drove it from pillar to post whenever the fit took it; but, as no harm was likely to ensue in this case, I let well alone—unfortunately, as the sequel proved.

Mr. Ayres writes:—"This species is common at Potchefstroom, breeding amongst the hedgerows, and constructing a cup-shaped nest, rather roughly built of twigs, intermingled with hair-like substances as a binding, and lined with cotton and fine wool, with here and there a feather. It begins to lay in September."

Dr. Russ says:—"The nearest ally of the Hartlaub's Seed-eater (Green Singing Finch); it has been confounded with it by many authors." He then points out the difference in size and colouring, and proceeds:—"Also differing in disposition, comparatively quieter, only somewhat excitable in the nesting-season. It is one of the best songsters among the Finches. As soon as the nesting-season approaches, the cock bird begins to feed his hen, about whom, up to that time he had not troubled himself, from the crop; and, Finch-like, follows it when building in all its actions. Nest formed in a thick bush not high above the earth, as a large open cup, externally of fine bents, internally of fibres, rootlets, and wool, and neatly rounded off with horse-hair. The laying consists of four to five greenish white eggs, zoned with delicate red and brown spots; sometimes differing. The development resembles that of the Hartlaub's Seed-eater. It nests as well in a cage as when flying freely in the bird-room. Its nearest relatives, even if much smaller, disturb it when sitting. Harmless and peaceable with all other birds. Long-lived."

In his *Fremdländischen Stubenvögel*, Dr. Russ adds:—"Although I have only bred it when at liberty in the bird-room, and no further

breeding results are known to me, I am nevertheless thereby convinced that, in like manner, it will also nest well in cages, and moreover, that it is one of the best birds for breeding in captivity. Of course one must avoid keeping its nearest allies with it in the bird-room, for even those which are much smaller, as the Grey Serin, and Hartlaub's Siskin, quarrel with and pursue it so that it is prevented from breeding."

These observations would lead one to suppose not only that my St. Helena Seed-eater was an unusually pugnacious individual, but that my Green and Grey Singing Finches associated with him were particularly amiable; yet the former of these followed out Dr. Russ' programme for a year after the reunion of the species, but in March, 1894, was pursued and killed by the St. Helena Seed-eater; the Grey Singing Finch confines his attacks to those of his own kind in the adjoining aviary, whom he fights through the wire partition. As regards breeding in a cage, I must admit that my repeated attempts to satisfy *S. flaviventris* with hen Canaries to its liking and my inability to please it, make me very sceptical; possibly a newly imported bird, if not allowed the run of a big aviary, but kept in a cage from the commencement of its captivity, might be induced to do so; but not one which has for years, or even months, been flying at large.

My bird does not bear out Dr. Russ' further observations, that it is "peaceable with all other smaller birds and far more harmless than most other Finches." I have seen it disputing with Canaries, hen Weavers, the Nonpareil and Saffron Finches; but more especially when there was some green food to quarrel for: I have also known it to fight with a cock Comoro Weaver.

The habits of individuals do not necessarily represent the natural tendencies of species; therefore only a study of numerous individuals, by many independent witnesses, can decide whether their behaviour is normal or abnormal.

The illustrations are from a living male in the author's collection, and from a skin of the female in the Natural History Museum.

THE GREEN SINGING FINCH.

Serinus icterus, BONA. ET VIEILL.

THIS charming and lively little Serin inhabits West Africa from Senegambia to the Gold Coast; the whole of East Africa to Natal, Damara Land, and Angola, but only extends as far as the Eastern Cape Colony. It has been introduced into Mauritius, Réunion, and other islands.

S. icterus bears a considerable resemblance to the St. Helena Seed-eater, but is decidedly smaller, the cock measuring $4\frac{1}{8}$ inches, and the hen $4\frac{1}{8}$ inches in length; its cheeks are bright yellow, separated from the throat by a black line across the lower part of the face; the tail feathers are also tipped with white.* The hen is paler in colouring than the cock, is somewhat browner above, and has a white spot on the chin.

The courting of this bird consists in his chasing the hen vigorously; at the same time shouting out his song, which at this season sounds exactly like the words "You're such a cure, I'll eat ye": when pursuing an enemy, he uses the same words; but, doubtless, they must then be understood differently. It seems strange that a bird, with such a small musical *répertoire*, should be specially designated a Singing Finch. Sometimes, but this is usually when the bird is perching, he utters a sort of note of defiance, "Ye-oo-er," probably only the first utterance of his song prolonged; and it is generally followed, almost instantly, by a dive from the branch after his enemy.

Mr. Angus says, "This species is pretty common about Rustenberg, where I found it congregated and feeding among stubbles on the farms, and sometimes also on the flowers of the parasite that the Sugar-birds are so fond of."

Messrs. Sharpe and Layard write:—"Mr. Ortlepp has sent us

* Mr. Abrahams declares that two species are confounded under the name of "Green Singing Finch," one of them being much more brightly coloured than the other, and having a white-tipped tail; he says that this is the bird illustrated on our plate, and should be called the "Bearded Seed-Eater;" Dr. Sharpe, on the other hand declares that they are only forms of one bird. Of the six or seven pairs which I have had, all the "Bearded Seed-Eaters" have been cocks, and all the "Green Singing Finches" hens, so that I am tempted to regard the difference as characteristic either of sex or age.

specimens of this bird, in breeding plumage, from Colesberg; he says that it sings sweetly. Mr. T. E. Atmore likewise procured it near Eland's Post and Grahamstown. Mr. Ayres, writing from the Transvaal, states that he met with a small company of five individuals amongst the low thorns in the Mariqua district and Rustenberg. Mr. F. Oates procured a specimen at Tati, Matabele Land, and Mr. Jameson occasionally met with it in small flocks during his expedition to the Mashoona country. Mr. Anderson writes:—"This species is common in the neighbourhood of the Okanvango, and is also found in Damara Land, extending to the south of that country. On January 5th, 1887, I found a nest of this Finch at Omapju; it was situated in a kamel-thorn bush, about four feet from the ground, and was composed of grass, lined with softer grass internally: it contained three eggs much incubated." Senor Anchieta has it from Biballa and Caconda: it is called *Kabilo* at the latter place, and *Kianja* at the former."

Dr. Russ says that the instinct of love in this bird is not so hearty as in the Ornamental Finches; "in graceful humour, the male feeds his hen with dove-like beak from the crop, but immediately afterwards chases and pursues her again. *Call-note* resounding, warbling, piercing, varying to loud, melodious, flute-like sounds. *Nest* formed in a nest-basket and other things, husks, Hartz Canary cages, or the like, never openly in a bush; constructed of fine grasses, bast and strips of paper, woollen and other threads, horse-hair, a few feathers and tow, and lined with grasses and rootlets. *Laying* four eggs, yellowish-white, for the most part spotted with buff. *Time of incubation*, thirteen days. *Young*, down whitish; leave the nest in about twenty days. The hen builds, being tempted, after the manner of Finches, by the male carrying in materials; also incubates alone; the young fed in common by the pair, and after their flight by the male only.

Nesting-time, September to the new year; afterwards calm and silent, the wedded pair scarcely care any longer for one another. Graceful, lively, enduring, it nests readily and surely, flying freely in the bird-room or in the breeding cage. Unfriendly towards its own species and near allies. Mules between it and Canaries and Grey Singing Finches have been reared."

In March, 1897, a hen built in a cigar-box in my outer covered aviary, laid five pure white eggs and sat steadily; but, at the end of about ten days all the eggs disappeared, having probably been stolen by a mouse. In the following month a pair in my bird-room took possession of a small nest built by a Canary in the usual square box hung upon the wire netting; on the 18th of the month, the nest

contained two pure white eggs, showing the usual rosy reflection of the yolk, but a few days later the nest was empty. Later attempts to breed were equally fruitless in both instances and the birds in the outer aviary became so aggressive that I was obliged to banish them to another enclosure and the company of larger birds.

A writer to *The Bazaar* (Mr. W. T. Catleugh) had a far more satisfactory experience:—"At the end of the year 1884, a pair came into my possession. For some days I considered that I had been 'done,' and that my pair were two cocks. Directly one or other of them warbled for a short time, it was the signal for a scrimmage. As a rule, they generally attacked each other; but occasionally they vented their spite on the Waxbills. To test whether they were a genuine pair, in the following year (on the 4th Feb.) they were put into a breeding-cage 18in. in length, 11in. in height, and 8in. in depth. Being so small a cage, I took out the nesting arrangements and the wired-off division underneath. One quarter of a cocoanut was then sawn off for an opening, the fruit scooped out, and the shell wired to the back of the cage. Into the bottom and sides of this was pressed firmly an ordinary moss-and-cow-hair nest that had been well pulled to pieces. The birds altered this but very little and soon took possession. Five eggs were laid, and the first one was hatched on the 25th March, and in less than seven weeks (viz. 10th May) the young birds began to sing. The breeding-cage was hung in the nursery facing south-west, as it was the only room available with a sunny aspect. I firmly believe that greater success is achieved in a room where there is plenty of noise, talking etc., than in one set apart for the purpose."

The above struck me as such an extraordinary fact that it seemed worth quoting. That these excitable birds should have laid and reared their young in an ordinary London-made Canary breeding-cage, and in a room where children were continually romping about; whilst my pair, in a cage measuring 2ft. 8in. high, 2ft. deep, and 18-20in. wide, never showed the slightest inclination to do so, seemed barely credible; but, in the matter of Bird-breeding, one has always to bear in mind the fact that it is usually the improbable which happens.

Wiener quotes the following from Dr. Russ' *Stubenvögel*:—"From afar we hear a clear melodious note. Repeated again and again, we fancy the same song is faintly echoed. Attentively listening and watching, we observe the hen answers each warble of the male."

I must confess to being utterly unable to support this statement: I have heard the male bird sing "from afar," if the distance between my dining-room and my bird-room can be so designated; but, though

I have listened, I never heard the song echoed by the hen, no not ever so faintly. At the same time I do not, for a moment, doubt that Dr. Russ' hen echoed the song of her mate; it is a common thing to hear hens of the English Siskin singing the male song in a lower key, although some hens have been in my possession for several years without attempting to sing.

I would, however, call attention to the fact that most hen Green Singing Finches do not echo the so-called song of the cock-bird. As regards the merit of the performance, I agree with Dr. Russ that it cannot be compared with that of the St. Helena Seed-eater, of which he says "er aber als Snger doch viel werthvoller als der letztgenannte ist" (as a singer however he is ever so much more meritorious than the last mentioned).

I have tried to indicate the song as heard during the breeding season; at other times it is more varied, the variations being less melodious and indeed more nearly resembling, at times, the latter part of the song of the Indigo Bunting, with a good deal of "*chichi-chee-chee-cheo*" about it: but, however, and whenever it is heard, the performance is always short, rapid and shrill though not unmelodious.

Illustrations from living specimens in the author's collection.

THE GREY SINGING FINCH.

Serinus leucopygius, SUNDEV.

WITHOUT question the best performer among all Singing Finches; its melody is lively, vigorous, full of sweet notes and deficient in all harsh or unpleasant ones. Compared with *Serinus leucopygius*, the ordinary type of domesticated Canary is little better than a discordant screamer: there is, in truth, as wide a difference between the musical productions of these two Serins, as exists between



GREY SINGING-FINCH, (*Serinus leucopygius*.) ♂.
 ALARIO-FINCH. (*Alario alario*.) ♂. ♀.

the playing of a flute by a skilled professional, and the tooting on a tin-whistle by a street urchin.

The Grey Singing Finch inhabits North-Eastern and Equatorial Africa.

The general colouring of the upper surface is smoky grey, with dull brown centres to the feathers; the rump white, separated from the grey of the back by a blackish band; upper tail-coverts and tail feathers brown, with greyer edges; lesser wing-coverts ash grey, remainder of wing brown, the feathers with paler edges; crown of head and front of neck pale smoky grey, distinctly streaked with brown; back of neck without streaks; throat ashy whitish, browner on the front of the chest, where there are a few dusky spots; breast and abdomen white, the flanks slightly greyish and streaked with brown; under wing-coverts and axillaries greyish brown, with whitish edges; flight feathers below smoky, their inner edges yellowish grey. Length $4\frac{3}{10}$ inches. Beak and legs flesh brownish, iris brown.

The sexes appear to be absolutely alike; but Mr. Abrahams unhesitatingly selected a pair for me, and his selection proved to be correct; he informed me at the time, that the only reliable difference was in the white centre to the throat of the male, showing as a pure white spot when the bird was singing, but not easy to distinguish at other times.

This pair of Grey Singing Finches nested in a German Canary-cage, building a very neat little structure of scraps of moss, grass roots, and cow-hair, on the floor of the cage; unhappily the hen died with her second egg. I subsequently picked up two additional specimens for a few shillings, both of which eventually proved to be cock birds; so that my chance of breeding this delightful singer was, for the time, at an end: not so, however, the music.

The Grey Singing Finch, in his disposition, is a veritable Paddy; he fights incessantly with his own species, for the mere fun of the thing, singing all the time and only pausing to give fuller vigour to his melody. To see three of these little grey and white birds, all near together, wagging their heads and pouring forth a volume of sweet sound; then darting off, all at once, and fluttering round one another like butterflies, is a treat indeed.

After an apparently desperate encounter, in which the combatants have perhaps lost several small feathers from the crown or neck, they will be seen amicably feeding together from the same hopper: at night, too, they frequently roost close together; evidently being on the best of terms with each other.

Dr. Russ thus speaks of this species :—"Unassuming, grey, elegant Songster. Already glorified by Vieillot as S n gali-chanteur and designated as 'musica.' It was unknown to us among the bird amateurs until 1868; it was sold in quantities erroneously as the female of the Atlas-bird (Steel-Finch). Through my description in the *Gartenlaube*, it quickly gained favour in the widest circles, and since then has been naturalized in all bird-rooms, and also has been already bred in many instances. First of all, Mr. Dorpm ller, the Architect of Gladbach, reared it through several generations, and various amateurs followed; after me, Dr. Franken, of Badenbaden: Engineer Henschel, of Innleitenm hle, and others, have also reared crosses between it and Canary hens; Dr. Franken, the like, with the Mozambique Serin (Green Singing Finch), and Angola Linnet (Yellow-rumped Seed-eater)."

"Graceful, loveable and peaceable (yet not with its own kind and the most nearly related species), in the bird-room, as in the aviary, he earns the good-will and affection of all amateurs. *Song* uncommonly powerful and melodious, reminds one of those of the Woodlark and the Canary bird. *Nest* open, ornamentally formed of stalks, fibres, little threads, cotton and the like. *Laying* four to five eggs, pale blue, at times greenish, finely speckled and spotted with reddish or brown; incubated by the female only in thirteen days. *Nestling* down bluish white. *Young plumage* only fainter and more washed out than that of the old bird. The little beak white; the feet flesh coloured. *Change of colour* with the moult, so that the young bird in its new feathering shows the adult plumage. *Moult* in our Spring months."

Dr. Russ adds that it is delicate when it arrives in Europe, but when acclimatized, is vigorous and enduring: my own experience would have led me to conclude that it was never delicate; for the two cocks which I have previously noted as picked up cheaply, were quite newly imported and somewhat rough in feathering; yet neither ever showed the least indication of weakness; but, from the beginning, were as sturdy and active as at the present time. I have never known this species to quarrel with any other; I found it always peaceful towards the Green Singing Finch. I have, however, seen it pursued by the White-throated Finch: which was unable to catch it, and I have seen the Green Singing Finch dash after it once or twice during the breeding season also, without being able to overtake it. My two last males of this species were eventually killed by a male Pileated Finch, and two other examples which I subsequently bought, in the hope that they would prove to be cock birds, proved when in good plumage to be both hens.

In his *Fremdländischen Stubenvögel* Dr. Russ tells us that Vierthaler describes the propagation of this species very superficially; (the majority of collectors pay very little attention to the habits of birds, their object being either to live by destroying them, or to get together a large collection and thus obtain an insight into the geographical distribution of birds; it is only the truly scientific collector who cares anything about the life of the things he obtains, or takes the least trouble to learn anything about them. In short, ordinary collectors are little more than machines for the accumulation of dead materials). However, to continue, it appears that Vierthaler found the nest on the Blue Nile, about five feet above the ground, with three eggs; and that is all that is known of the wild life of the species.

Illustration from living specimens in the author's collection.

THE ALARIO FINCH.

Alario alario, LINN.

THIS is a very melodious song-bird from Southern Africa, its range extending from Cape Town northwards to Damara Land, and eastwards to Port Elizabeth. The cock-bird in its colouring is curiously like the Three-coloured Mannikin: its entire head, with the exception of a whitish spot at the base of the lower mandible, and a crescentic band on the chin are jet-black, this colour extending from the sides of the neck and throat so as to join a broad, almost square, patch on the chest; the latter is only at all distinguishable from the black of the throat by a few white hairs in the hinder feathers of the latter; from the posterior angles of the thoracic patch, two well-defined lateral black streaks run irregularly into the whitish breast; the black of the nape is defined laterally by a white band, slightly stained with dusky, which forms an imperfect collar and passes into the white of the shoulder; the back of the neck, mantle and whole upper surface, including the wing-coverts and tail, are bright reddish-chocolate,

brightest on the hind back and upper tail-coverts; the flight-feathers black, tipped with pale chocolate-reddish, excepting the secondaries, which are tipped and bordered with bright chocolate, increasing in width towards the body, the last secondaries being almost wholly of this colour; the breast, abdomen, and under tail-coverts, dull buffish-white, a little purer at the sides of the chest; more or less mottled with black at the sides of the chest and abdomen; quills below dead black; tail-feathers below greyish-chocolate, darker on the outer web and with short black terminal shaft-streaks. Length $4\frac{5}{16}$ inches. Beak pale greyish-brown, darker on the upper mandible; legs slaty-grey; iris brown.

The hen is smaller and altogether greyer than the male bird; the black of the head, neck, throat, chest, etc., are wanting; being only represented by sooty mottling on the throat and centre of chest; even the black of the flight feathers is duller and internally greyer; the under surface colouring is browner, being whitish in the centre of abdomen and vent; the reddish colouring above is almost lost excepting on the hinder part of the body, the tail, the wing-coverts, and secondaries. Length $4\frac{1}{2}$ inches.

The young nearly resemble the hen, but are more tawny in colouring, with the feathers above streaked, and those on the throat, breast, and sides, spotted with sooty blackish.

I purchased a pair of Alario Finches from Mr. Abrahams, about the year 1889, and turned them into my Waxbill aviary, in the hope that I should be able to breed them; the cock was in full song, and there is little question that I should have been successful, but unfortunately one night he took fright, flew out excitedly from his perch, and striking his head against a branch, fell dead with a fractured skull: the hen lived happily among my tiny Finches for eighteen months, leading a very uneventful existence, but one frosty night a sudden fall in the temperature gave her a cold, from which she never recovered. In 1897, a male obtained in 1890, which was still in vigorous health, picked up and frequently repeated the complete song of the Norwich Canary, whilst a second male, in my outer aviary, learnt and improved upon the song of the Linnet.

At the annual bird show at the Crystal Palace for 1890, Mr. J. Leslie exhibited a mule, which he had bred between this bird and a Canary; but, as might have been expected, the judge was too conservative to consider a cross between an African bird and a Canary worth even a commendation: yet, to all lovers of foreign birds, that must have been by far the most interesting mule in the show; something

quite distinct from the everlasting Goldfinch and Linnet mules dear to the Canary fancier. In matters relating to birds, I must confess myself to be an Athenian.

Sharpe and Layard tell us:—"This is the Berg-Canarie (Mountain Canary) of the colonists. We have received it from the Knysna, Malmesbury, Swellendam and Colesberg, and Mr. Rickard has procured it at Port Elizabeth; he writes:—"I fancy this is the species much prized by the lads in Port Elizabeth, who call it the 'Namaqua'; it only appears at long intervals, but in considerable numbers when it does occur; they sing well and become very tame.'"

"It is not uncommon in the neighbourhood of Nel's Poort (Beaufort), ranging in small flocks among the thorn-bushes and feeding on grass seeds. It often intermingles with flocks of the common *A. astrild*."

"Its song is very sweet and sustained, for which reason it is kept in confinement, which it endures very well. It seems to vary somewhat in the distribution of its colours. Its eggs, sent by Mr. Jackson and others, rather resemble those of the Cape Canary, being white, tinged with green, more or less spotted, blotched, and streaked, chiefly at the obtuse end, with various shades of brown. Axis $8\frac{1}{2}$, diameter 6. Mr. Anderson says:—"I only met with this pretty Finch in Great Namaqua-Land, where it occurred in small flocks at the water.'"

Dr. Russ tells us that this Finch, "when acclimatized, is not delicate; is peaceable and harmless; is quarrelled with and pursued by its relatives at breeding time. It has not itself been bred. Dr. Franken and Harres, the Architect, bred mules with Canary hens. Song continuing the whole year, soft, flute-like, but low pitched." In his larger book he only adds Dr. Franken's experiences in crossing the Alario Finch with the Canary, which appear to have been far less satisfactory than those of Mr. Leslie, inasmuch as he seems only to have obtained one hen from six sittings of eggs. In 1896, and again in 1897, my friend, Mr. Horatio Fillmer, of Brighton, was successful in breeding this species, and apparently without much trouble.

The illustrations are from skins of specimens formerly living in the author's collection.

THE BLACK-HEADED SISKIN.

Chrysomitris icterica, LICHT.

MY experience with Siskins generally, has been so unpleasant, that I cannot recommend them to any who wish to enjoy them for any length of time. They seem to me to be the most delicate of all the true Finches: even in the case of our British species, for one specimen that has lived three or four years, at least a dozen have died after a twelve-month of captivity. Of two American Siskins (I believe *Chrysomitris Yarrelli* from Bahia and Pernambuco) which I purchased at fifteen shillings a head, one died in a week and the other in a fortnight, after singing in so lively and beautiful a manner, that one wished them to live for ever. In the case of the present species,—I imported it in 1893 from the Argentines; it arrived in a puffy condition and died three days afterwards. As a set-off against this frailty, it cannot be denied that some of these birds are admirable singers, almost attaining to the musical skill of the Serins and distinctly excelling that of the Green Singing Finch: they are moreover the most confiding and tamest of all *Fringillinae*.

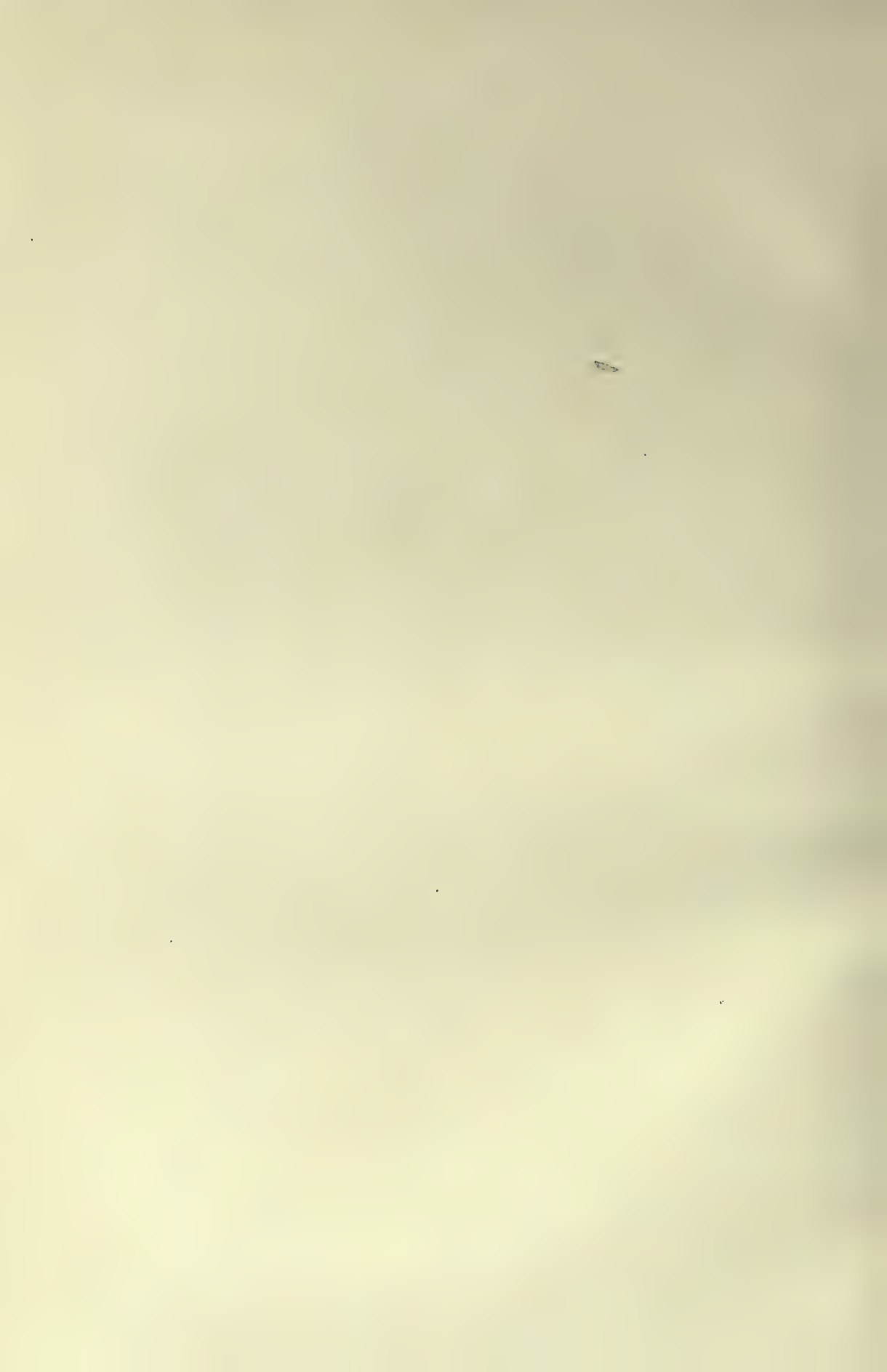
The Black-headed Siskin is a native of Brazil and the Argentine Republic to Chili.

The male above is olive-yellowish, becoming bright yellow on the hind part of the back, upper tail-coverts and base of tail feathers; the remaining portion of the tail black; the wings, excepting at the base, black, the median and greater coverts tipped with yellow; the flights with their bases and edges bright yellow; nape, sides of face and throat black; back and sides of neck bright yellow, forming an imperfect collar; front of neck and body below yellow; beak and legs blackish; iris brown. Length $4\frac{1}{2}$ inches.

Female greyer above, but the hind part of back yellower; upper tail-coverts grey-greenish; tail feathers brownish, with less yellow at base; forehead slightly yellowish; median and greater wing-coverts tipped with greyish-white; the quills less yellow at the base, the secondaries edged with whitish towards the tip of the outer web;



BLACK-HEADED SISKIN ♂. ♀.
(*Chrysomitris icterica*.)



cheeks and body below pale grey, slightly greenish on the throat; abdomen and under tail-coverts whitish. Length $4\frac{1}{8}$ inches.

Mr. W. H. Hudson says that this Siskin "is extremely common throughout the entire length of the Argentine country from Brazil to Patagonia. In the Buenos-Ayorean district it probably has a partial migration, as small flocks are seen to arrive in Spring, but further south, in Patagonia, it appears to be strictly resident. In settled districts they are always more abundant than in the woods, and they have a special predilection for poplar groves, and always prefer a poplar to build in. They go in small flocks, seldom more than about a dozen birds together, have a rapid, undulating flight, feed chiefly on the ground, like most Finches, and also frequently alight in the seeding-time on plants like the lettuce and *Sanctus asper* (the Sow-Thistle) and clinging to the stem, dexterously pick off the seed, scattering the down about them in a little cloud. They are very tuneful, restless, quick in their motions, apparently always in a light-hearted merry mood. Being much admired for their song, they are often kept in cages; and certainly, for cheerfulness and constancy in singing, they take the foremost place amongst the Finches; but there is little expression in the song, which is composed of a variety of short twittering notes, uttered with great rapidity, as the bird sits perched on a twig or undulates from tree to tree. Usually the notes flow in a continuous stream, but occasionally the bird sings in a different manner, making a pause of two or three seconds of silence after every eight or ten short notes. When the female is on the nest the male sometimes perches near her amongst the leaves and sings *sotto voce*, apparently for her pleasure only, the notes being so low that, at a distance of ten yards, they can scarcely be heard."

"The nest is usually placed between the angle formed by a small branch and the bole of the tree, and is a deep, well-made structure composed of many materials, and lined with horse-hair, down, or feathers. The eggs are five, very small for the bird, pure white, and so frail that it is not easy to take them from the nest without breaking them."

"While engaged in building, the birds constantly utter a low, soft trilling note; and when the nest is approached they break out into long, somewhat reedy notes, resembling those of the Canary, expressive of alarm or curiosity."

My bird was fed, on the journey to England, on canary, German rape, flax, and hemp. In my opinion, if thistle and teasel could have been substituted for the flax, and less hemp given, there would have

been a better chance of its retaining its health: it is also evident, from Mr. Hudson's account, that lettuce would be a good additional seed to give.

It is a singular fact that this species, which bears a close general resemblance to our British Siskin, and builds an open nest, should yet lay white unspotted eggs. Excepting in the case of the *Columbidæ*, the earliest types of which family probably built in holes; the eggs of birds which construct open nests, rarely show this total deficiency, both in colour and markings; whereas, on the other hand, the eggs of birds which lay in holes or covered cave-like nests of any density, are usually white and very rarely spotted.*

Although none of my English Siskins ever showed the slightest intention of breeding in an aviary, beyond the fact that the cock birds fed one another and their hens, from the crop; it does not necessarily follow that the Black-headed Siskin would not do so. In which case moss, spiders' egg cocoons, fine roots, hay, cow-hair, and feathers, should be provided: if no natural branches, let into the wall of the aviary, already existed, it might be judicious to introduce them. When breeding, these birds would probably be all the better for plenty of green-fly (*Aphis*), which our species eat greedily when it has nestlings: groundsel both in flower and seed, should certainly be given; as well as Abrahams' food, of which these birds are very fond.

Although Mr. Hudson says that there is little expression in the song of this Siskin; Neuwied, on the other hand, says,—“the song is varied and pleasant, although not very loud: it is considered one of the best singers of South America.” Burmeister, however, is evidently of Mr. Hudson's opinion; he observes,—“It comes near to the settlements and even to the gardens of the villages, allows itself to be caught, is kept in cages, but sings little and without great variety of notes.” “Its food consists of dry seeds of weeds and, in captivity, especially canary seed.” There is the same difference of opinion respecting the song of the European Siskin; some naturalists admire it exceedingly, being charmed with its joyousness and the comical hurdy-gurdy finish; whilst others speak contemptuously of it. To my mind there is far more music in it than the song of the Goldfinch, which is jerky and full of pauses; filled up by ludicrous squeaks, and lateral wrenchings

* I have stated these facts elsewhere, and was thoughtlessly answered, that the Sparrow, Starling and Swallow, among British Birds, were exceptions. This is quite a mistake; all three, naturally, lay their eggs in nests partly or wholly open to a top light. The Sparrow, in field or garden, builds a purse-shaped nest, open near, or at, the top; the Starling lines a hollow in a branch, open above; and the Swallow leaves a gap above its open nest, even when it is built under cover of a ledge: the eggs of the Swallow also are spotted on a white ground.

of the body, more appropriate to the conductor of a band, than one of the performers.

Inasmuch as the Brazilians think it worth while to catch and cage *C. icterica*, it is safe to conclude that there are good features in its song; for there is nothing startlingly attractive in its plumage to make it worth keeping as a pet, in a land where the most gorgeously coloured Tanagers could be as easily provided for.

Dr. Russ' experience of this species seems to have been similar to mine; he says:—"In 1877 I received a pair from Mr. H. Möller, in Hamburg, but they soon died.* Since 1880 now and again a single pair has been imported." He informs us, however, that Mr. Kerfack, of Berlin, bred this species in 1883 in his bird-room.

The illustration of the male is taken from a skin of a bird formerly living in the author's collection.

THE BUNTINGS.

EMBERIZINÆ.

MR. SEEBOHM gives the following characters for distinguishing the Buntings from other Finches:—"Their gape-line is not straight, as in most birds, nor arched as in *Pyrrhula* and *Carpodacus*, but as an angle in the centre, the palate furnished with a hard horny knob. The lower mandible is laterally compressed, so as to form a sort of anvil for this knob. The nostrils are partly hidden by short feathers, and the rictal bristles are almost obsolete. In a few of the species the hind claw is elongated, something like that of a Lark or a Pipit."

"Their flight is strong and undulating, and on the ground they both hop and run." This last statement, however true of European

* The most literal translation of the German "ging ein" would be the slangy English equivalent "caved in."

species, does not apply to some of the foreigners, which hop and never run; neither, if universal, would it serve to distinguish them from the typical Fringilline genus *Fringilla*, or from *Sycalis*.

Dr. Sharpe gives the following characters:—"Cutting-edges of the mandibles not conterminous, leaving a gap in the outline of the closed bill; mandibular angle at chin very acute." In his notes on the family *Fringillidæ*, however, he says: "No one has as yet propounded a satisfactory classification of the *Fringillidæ*, the difficulty consisting in the complete connection which exists between the various genera of Finches and Buntings, and such ornithologists only who have not entered into a detailed study of this family will speak of the Finches, Buntings, and their allies, as if they constituted well-defined families. And one who has worked upon a large or small fragment of the family must acknowledge that the definition of the genera is difficult and the recognition of subfamilies almost impossible. The *Fringillidæ* naturally group themselves into three divisions—Grosbeaks, Finches, and Buntings; but numerous forms connect them, being referable to the confines of any of the three groups. Thus *Cardinalis* will probably be found from its osteology to be a Bunting with the aspect of a Grosbeak; while *Urocynchramus* is certainly a Bunting with the aspect of a Rose-Finch, or, if it be preferred, a Rose-Finch with the bill of a Bunting."

"Every division of the family is therefore to be accepted on the score of convenience, rather than as having a foundation of solid structural characters."—*Catalogue of Birds*, vol. XII.

For some time it was doubted whether the Buntings, like the other Finches, fed their young from the crop; but, since the publication of the first edition of this work, I and others have conclusively proved that they do so feed them whilst in their unfeathered condition, although they begin to give broken up insect food for a short time before the young are ready to fly.

I have proved that *Sycalis*, a very Bunting-like genus of Finches, does feed from the crop, and anyone may see for himself that *Passer* does so;* all the true Finches and the small Ploceine Finches have the same characteristic: it would therefore be extremely odd if the Buntings should be an exception to the rule: indeed the fact, attested by Dr. Carl Russ and Herr August Wiener, that the Indigo Bunting has been successfully crossed with the Canary, seems almost to prove the regurgitating faculty to be a property of the *Emberizinae*, in common with other Finches.

*Even this fact has been denied by some of those who might as well be blind, for all the use they appear to have made of their eyes.



NONPAREIL BUNTING
(*Cyanospiza ciris*)

The Buntings are decidedly more insectivorous than the majority of the typical Finches, or even the *Ploceidæ*: indeed, to the latter, insect food is a luxury rather than a necessity, and most of them entirely ignore it, when offered to them; the true Weavers, however, are rather fond of spiders, mealworms, and small caterpillars, as also are some of the Waxbills.

On the other hand, the *Emberizinae* are much less eager for green food than the *Fringillinae*; frequently refusing it altogether when it is provided. They, however, resemble the true Finches in their fondness for soft food, but especially when breeding.

THE NONPAREIL BUNTING.

Cyanopiza ciris, LINN.

A VERY common species in the Southern United States, spreading along the coast as far north as Carolina; southward to Texas, Central America from Mexico to Guatemala and Panama, Cuba, the Bahamas, Cozumel and neighbouring islands.

The cock bird has the crown of the head, cheeks and mantle of an almost ultramarine blue; the back golden green shading into orange on the lower portion; the upper tail-coverts yellow shading into golden green; the tail feathers duller green; the wing feathers greyish bronze; the lesser coverts being wholly bronze, but the remaining feathers with a golden green outer web; axillaries reddish; chin, throat, breast, belly and under tail-coverts bright vermilion red; sides and flanks slightly tinged with green. Length five inches; beak and legs dark grey; feathers encircling eye orange; iris hazel.

In confinement, excepting in an open sunny aviary, all the vermilion colouring gradually disappears from the under surface, which becomes bright yellow excepting on the chin, which sometimes retains a reddish tinge.

The hen is altogether duller in colouring than the cock: the upper

surface being entirely bronze green; the wing feathers mostly dusky, with green outer webs; the central tail feathers dull green, the remainder dusky with dull green outer borders; the lores greyish; feathers encircling the eye yellowish; sides of face and ear-coverts with a buff tinge; under surface dull yellow, slightly tinged with brown on the sides and flanks; under wing-coverts greenish grey; flights smoky with greyish inner webs. Length five and three-tenth inches, sometimes smaller.*

Some years ago I turned a pair of this species into one of my bird-room aviaries, but they showed no disposition to breed: moreover the hen proved to be delicate and only lived for about six months; this was disappointing, especially as one does not often get a chance of obtaining that sex, even at nearly double the price of a cock-bird.

Though usually wild when first turned loose in a large aviary, the Nonpareil soon gets to know his keeper and will come to the front when called, to take mealworms or flies from his fingers: in fact, after a time the bird calls to its owner, if he offers to pass the aviary without pausing to give it a tit-bit.

The song of the Nonpareil is soft, gentle and sweet; in character it is not unlike that of the Indigo Bunting, but it has none of the shrill notes of that species: in fact it would make a far more amiable and suitable pet for a nervous old lady than a Canary; and, if it were only generally known that it was a hardier, cheaper, tamer, less noisy, and infinitely more beautiful bird, it is probable that the demand for Nonpareils would rapidly exceed the supply.

In its native country, *Cyanospiza ciris* usually frequents small thickets, where the cock bird sings to his hen from the topmost branch of some shrub or bush, as she sits in her nest in the lower branches of bramble or orange. So steadily does this mother brood over her eggs, that she may even be lifted from them, before she will attempt to escape. The nest is formed of extremely dry grasses, intermixed with rootlets and fine hair, felted together with the silk of caterpillars. The eggs are pearly white, blotched and dotted with purplish and reddish-brown.

Mr. G. T. Gaumer, in his notes on birds from Yucatan, speaks of *C. ciris* as "Common in all open lands and villages, often seen in the principal streets of Merida, but most common on the coast. It lives among the weeds and low bushes, where it finds its food, which consists chiefly of seeds. Rather rare in midsummer."

* Young cock birds, just commencing to acquire the red colouring on the flanks, have been mistaken for hens in full breeding colour.

The Nonpareil Bunting has one fault, it is decidedly a combative bird; if kept with Indigo Buntings, it renders their lives a burden by its frequent attacks; nor is it always wise in its choice of opponents, for my second cock of this species nearly lost his life by attacking three Saffron Finches, which fell upon and so mauled him, that after a second day of a series of such encounters, I discovered him sitting upon his tail, on the sand; the feathers all plucked from his neck: the poor fellow felt so bad that he let me pick him up without an effort to escape.

As the above event occurred in the summer time, I turned my Nonpareil into an outer aviary, open all day to the air; and, after moping about for nearly a week, he suddenly plucked up his spirits and became as lively as ever; nevertheless, he did not regain the feathers on his neck until his autumn moult; but went about, looking like a scarecrow, for several months.

It is probable that the cause of dispute between my Nonpareil and Saffron Finches was that the former mistook a hen *Sycalis* for a female of his own species; the size and general coloration would be sufficiently near to deceive a bird, which had not been introduced to a lady of his own set for three or four years.

The pugnacious disposition of the Nonpareil is taken advantage of by the American bird-catchers, somewhat as that of the Chaffinch is in England; only, instead of using limed twigs, they set up a stuffed specimen on the platform of a trap-cage.

Dr. Carl Russ, in his little work entitled *Canary Birds: how to breed for profit or pleasure*, in the chapter on mule-breeding, (p. 110 of the English edition), states that the Nonpareil and the Indigo bird are adapted for this sort of breeding.

In his *Handbuch für Vogelliebhaber*, he says:—"Belonging to the most beautiful of all Finches, one of the commonest in the bird-shop; imported yearly in many hundreds, they always go off well."

"If suitably fed and not disturbed, nests regularly, in two to three broods. *Nest* a shallow cup, formed in a bush or in a little basket, of soft strips of paper, stalks, bast-fibres, and, after that, of moss, cotton-threads, agave-fibres and horse-hair. *Laying* three to four eggs, bluish-white, sprinkled with brown and violet. *Incubation* thirteen days. The hen builds and incubates alone. The male feeds both with her and alone, if the hen begins to nest again. *Young plumage* like that of the hen, only duller grey-green. The male first acquires its full-coloured plumage in the third year, up to that time it is parti-coloured.

"At breeding-time very excited, they jerk their tails; though at

other times peaceable, they now drive every bird away from the vicinity of the nest. Males are much commoner than hens in the trade; and frequently kept singly as songsters. The objection to breeding them is: all young Pope-Finches (the German trivial name) in the first spring almost entirely resemble the female; males can only be with difficulty distinguished by the yellow or orange-coloured eye-ring and brighter under surface. Enduring, unassuming and peaceable; the males should, nevertheless, not be kept with their own species or the allied Indigo Bird."

"Song pleasant, yet low-pitched and not rich in variations, from March to July. Dies from being fed on seeds alone, of constipation and other illnesses. Old Pope-Finches will readily feed all kinds of young insectivorous birds with fresh ants' cocoons etc., Dr. Bolan is satisfied that a bird which does this must have reared a Cuckoo."

In Dr. Russ' *Die Fremdländischen Stubenvögel*, that most reliable author makes an extraordinary assertion, almost the only statement made in any one of his writings, so far as I have studied them, which I am utterly unable to endorse. He is criticizing Dr. Gundlach, who says that the wild Nonpareil retains its coloured plumage, when it has once acquired it, and is thereby distinguishable from its predecessors; and he says:—"In the latter assertion, as is well known, Dr. Gundlach is mistaken; for the Pope-Finch, as well as the Indigo Finch, belongs to those birds which in the autumn change their colouring to the inconspicuous plumage of the hen. The male is then distinguished from the latter only by its somewhat deeper shading."

Now, of course, we all are well aware that the nearly allied Indigo Finch, at the approach of winter, assumes the dull plumage of the hen; but as regards the cock Nonpareil, I have no hesitation in asserting positively, that Dr. Gundlach was not in error. Personally I have kept the species for about eleven years, and therefore have only observed eleven moults; but, in no single instance have my cock birds assumed the female plumage, or anything approaching to it.

In the second place, the Crystal Palace Bird Show, as is well known, regularly takes place in the winter (for the benefit of Canary breeders and to the great dissatisfaction of foreign bird keepers): at that show there is usually at least one cock Nonpareil which ought to be in undress uniform, if Dr. Russ were correct, but is invariably an unmistakeable male.

Lastly, Mr. Abrahams, who has had hundreds, or more probably, thousands, of Nonpareils through his hands, and has made a study of them, as he does of all birds which come into his possession, assures

me that when the cock Nonpareil once acquires its full breeding-dress, it never again assumes the hen plumage. The only change which the cock Nonpareil is liable to in confinement, unless it has plenty of liberty in a large airy and sunny aviary, is—that the vermilion of the cheeks, throat, and under parts, gradually, moult by moult, is replaced by yellow; but the blue of the head and the golden green of the back are never lost. A bird, which was taken from a not too well-lighted indoor aviary and turned outside, became, at his last autumn moult, much brighter in colouring, the yellow having assumed an orange tinge; but unfortunately he shortly afterwards died.*

Further on, Dr. Russ makes some observations which are of considerable interest; he says:—"Many attempts have recently been made to breed Canary mules with it. In spite of the fact that no authenticated instance of the success of such breeding has become known to me, I have not the least doubt of its possibility."

Some mule breeders, whose faith is limited to their own personal experience, ridicule the bare idea of the possibility of a cross between a typical Finch and a Bunting; just as they do between a true Finch and the type of the family: but what Dr. Russ and Mr. Wiener positively assert with regard to the Indigo Finch (also a Bunting), clearly proves that such feats in mule breeding, though perhaps requiring more patience and perseverance than the ordinary breeder possesses, are by no means impossible: indeed the crossing of a Waxbill and a Grass Finch would seem to be quite as difficult, so far as actual affinity between the parents goes. There are, however, unfortunately men who not only disbelieve facts, but would not credit their own eyesight, if it contradicted their long-cherished superstitions: they mistake disbelief, which is frequently the offspring of ignorance, for wisdom; and thereby show the narrowness of their own minds.

In confinement canary seed, white millet, spray millet, mealworms, cockroaches, or other insect food, and fresh chickweed, when obtainable, form suitable food for the Nonpareil; but too many mealworms should not be given, as they tend to make the bird too fat; one or two a day, when other insect food cannot be procured, are sufficient to keep it in health; moreover, as soon as caterpillars can be substituted, they should be given in preference: those of the Cabbage Moth, or Dot Moth, being as good as any: hairy caterpillars are of no use, excepting to feed members of the Thrush family and Cuckoos, as most insectivorous birds will not touch them.

* Since writing the above I have acquired two others.

The illustration of the male bird is taken from living examples in the author's collection, that of the female from a skin in the National collection.

THE INDIGO BUNTING.*

Cyanospiza cyanea, LINN.

THIS Bunting inhabits the Eastern United States, extending in the winter throughout Central America to Panama, the Bahamas, Cozumel, and adjacent islands. The general colour of the adult cock in breeding plumage is greenish cobalt blue, tinged with ultramarine on the head, throat, and middle of breast; the wing feathers are dark brown, slightly bluish on their outer edges: length 5 inches; beak brownish black, bluish beneath, legs dark brown, iris dark brown. In the winter the plumage above is rufous brown, and below ochraceous brown, whiter on the throat and abdomen, the wings and tail as in the summer, but the coverts edged with rufous brown. The change to summer plumage is gained by an alteration of colour in the winter feathering, not by abrasion of the tips of the feathers.

The hen above is dark brown, slightly reddish on the head and back; the feathers of the mantle with dark centres; median and greater wing-coverts blackish, with brown edges, the extremities margined with whitish; flight feathers and primary coverts smoky brown with pale bluish outer edges; the inner secondaries with brown margins; tail feathers smoky brown with bluish edges; lores dull white; cheek and ear-coverts pale reddish brown; throat and body below dull white, reddish brown at the sides; with some dark brown streaks on the throat, chest and sides of breast; axillaries and under wing-coverts buff with dusky centres; quills dusky below, greyish along the inner webs. Length $4\frac{7}{8}$ inches.

Both this and the Nonpareil Bunting have been called the "Painted Finch;" but the first name ever given to *C. cyanea*, viz.—"Blew

* The Blue Grosbeak is called "Indigo Finch" by Sclater and Hudson, in their *Argentine Ornithology*.



INDIGO BUNTING.
(*Cyanospiza cyanea*)

Linnet" is by far the most appropriate, in spite of the fact that it is a Bunting. However, as many other birds have to put up with inappropriate trivial names, I suppose the fact that there is no indigo in the colouring of *C. cyanea* need not be considered: fortunately in the case of the "Ultramarine Finch" which is of an indigo hue, we are able to drop the misnomer.

During the summer months the song of the Indigo Finch may be heard at intervals during the day, and again at dusk, when all other birds have settled down to sleep; at this time, however, and in the winter, he never completes the song, but only utters five notes, which sound like *chichi, chee, chee, chee, chee*, the last *chee* being prolonged: the full song would add about ten more syllables, somewhat as follows: *chichi, chichi, chichi, chee, chicheechee*, all in a lower tone than the commencement.

Ridgway says that "the common Indigo Bird of the Eastern States is found in nearly uniform and tolerable abundance in various parts of the United States, from the valley of the Missouri to the Atlantic, and from Florida to New Brunswick. It is a summer visitor, but rare, in Eastern Maine, but is common in the western part of the State, where it arrives in the early part of May, and where it breeds. Mr. Allen speaks of it as not very common in the vicinity of Springfield, Mass., arriving there about the middle of May, and breeding in gardens, orchards, and edges of woods, and making its nests in bushes. It leaves there about the middle of September.

"In manners it is active and sprightly, and its song is vigorous and pleasant. It is considered a better singer than either *C. ciris* or *C. amana*. It usually stations itself, in singing, on some high position, the top of a tree or of a chimney, where it chants its peculiar and charming song for quite a space of time. Its song consists of a repetition of short notes, at first loud and rapid, but gradually less frequent, and becoming less and less distinct. It sings with equal animation both in May and July, and its song may be occasionally heard even in August, and not less during the noonday heat of summer than in the cool of the morning. The most common of its vocal expressions sounds like *tshe-tshe-tshe*,* repeated several times. While the female is engaged in the cares of incubation, or just as the brood has appeared, the song of the male is said to be much shortened. In the village of Cambridge, Nuttall observed one of this species, regularly chanting its song, from the point of a forked lightning rod, on a very tall house.

* This interested me when I first read it, as being confirmatory of the correctness of my own rendering of the song of the Indigo Bunting.—A.G.B.

"The Indigo Bird usually builds its nest in the centre of a low thick bush. The first nest I ever met with was built in a thick sumach that had grown up at the bottom of a deep excavation, some fifteen feet below the surface, and but two feet above the base of the shrub. This same nest was occupied five successive summers. It was almost wholly built of matting that the birds had evidently taken from the ties of our grape-vines. Each year the nest was repaired with the same material. Once only they had two broods in one season. The second brood was not hatched out until September, and the family was not ready to migrate until after nearly all its kindred had assembled and gone. This nest, though principally made of bare matting, was very neatly and thoroughly lined with hair. Other nests are made of coarse grasses and sedges, and all are usually lined in a similar manner."

"Audubon and Wilson describe the eggs as blue, with purplish spots at the larger end. All that I have ever seen were white, with a slight tinge of greenish or blue, and unspotted. I have never been able to meet with a spotted egg of this bird, the identification of which was beyond suspicion. They are of a rounded oval shape, one side is only a little more pointed than the other. They measure $\cdot 75(\frac{3}{4})$ of an inch in length by $\cdot 58$ (nearly $\frac{1}{2}$) in breadth."

Dr. Russ makes the following notes respecting this Bunting: "*Song* a joyous full warbling, similar to those of the European Wren and Hedge-Sparrow. If undisturbed nests without difficulty. *Nest* in a thick bush, near the floor, of grass stems and the like. *Laying* five eggs, blue, with dark dotting. *Young Plumage* like that of the hen, but the wing and tail feathers with blue-grey margins; under-side streaked with bluish. Little beak grey-brown with yellow base; feet bright horn-brown."

"Has several broods, one after the other. The female rarely to be had; males on the contrary yearly imported in many hundreds. A migratory bird; in Autumn and Spring he is restless and occasions considerable disturbance in the Bird-room or aviary; at other times calm and peaceable, only a bully at breeding time. With proper care long-lived and regular in its change of colour."

Mr. Wiener says:—"With proper treatment the bird is well able to live all the year round in an English open-air aviary, displaying only a little restlessness at the period of migration. Cross-breeding with Canaries has been attempted, but with very little success. In the very rare cases where young cross-breeds resulted their colours were disappointing."

I have twice tried the Indigo Finch in aviaries open to the air:

on the first occasion I turned the bird out, as a last chance, to lower its temperature. It was in a corner of my bird-room on the ground, puffed up and with its face turned to the wall, evidently dying. On taking it in my hand and blowing aside the feathers, I found the abdomen red and inflamed; the bird was extremely hot, and evidently suffering from rather acute *enteritis*.

It seemed rather rough treatment, but I took that bird outside, put him into my coldest aviary, where, at the time, the thermometer registered several degrees of frost, and in about three days he was as well as ever. Mr. Abrahams thought that the pure air restored him, but I believe this rash heroic treatment lowered his temperature first, and the fresher atmosphere completed the cure. He lived for two years afterwards.

On another occasion I turned an Indigo Finch out in the autumn. He lived, and sang at intervals, throughout the winter; but, in the midst of his change into the breeding plumage, died suddenly and unexpectedly.

My very good friend, Dr. W. J. Holland, the Chancellor of the Western University of Pennsylvania, and a most enthusiastic naturalist, writes to me respecting the Indigo Bunting as follows:—

“This sprightly and brilliant little bird is very common over the Eastern United States, and retreating before the gales of winter, finds its home during the cold months in the Gulf States and Mexico.

It appears in the latter part of May in Pennsylvania, and a few stragglers are to be found lingering with us as late as October. In the Carolinas it is very abundant in the middle uplands, and frequents deserted fields upon the plantations, seeming to have a special fondness for those which are overgrown with thickets of brambles.

“The nest, which is a neat little affair, is built in low bushes, and is composed of leaves, interwoven with grasses on the outside, and is lined on the inside with finer stems of grass. There are generally four to five eggs: they are mostly bluish-white, though sometimes they are sparingly spotted and blotched with rusty-brown.

“The female is a very inconspicuous and shy creature, devoting herself with motherly assiduity to the cares of her nest. The male, on the other hand, is a great dandy, and loves to fly out from the covert and, perching upon a fence-stake or a tall bush, ejaculates his short, but sweet and rapid notes. He is obedient, however, to the call of his mate, and generally, after having once or twice uttered his song from his conspicuous perch, disappears at the call of his more timid companion.

"This spring, while visiting an educational institution, located in the hilly rural regions west of the Allegheny River, in the northern part of Butler County, in this State, I took a stroll one afternoon into the woodlands, and came at the edge of a field to a thicket of hazel. One of the Indigo Buntings flew up ahead of me, and perching upon the top of a mullein stalk uttered his song. At the same moment I saw a female bird slyly flitting away from among the hazels. I investigated and was presently rewarded by finding a nest containing three eggs. Presently another female bird flew up and I discovered another nest. A close search showed that there were no less than six nests of this bird contained in a thicket not more than five yards square. It is very unusual to find so many nests of the same species crowded together in so limited a space.

"In New England, in the western parts of Massachusetts, I have not infrequently found the nests of this bird hidden among the branches of the *Spiræa tomentosa*, or hardhack, which is a very common growth on waste and neglected lands; while in the south a favourite nesting place seemed to be in the thick tufted growths of the *Ceanothus americanus*, or New Jersey tea."

As regards mule-breeding with Canaries, Dr. Russ does not say, as Wiener practically does, that complete success has been attained; but he says what is just as much to the point; "Now and again attempts have been made to breed mules between it and a Canary-bird hen, but I cannot be absolutely certain of any issue; nevertheless, I know, that in one instance the hen laid fertilized eggs. It must therefore be quite possible to breed mules from it, and these would be very beautiful, or at any rate extremely remarkable birds."

Now, it is very certain that, unless Dr. Russ had received unimpeachable evidence of the fact that an Indigo Finch had been successfully paired with a Canary with the effect that she laid fertile eggs, he would not have said "I know." Dr. Russ may make a mistake in a detail as to change of colour in adult birds; but in his special department of Bird-breeding and all connected therewith, he is not at all likely to blunder.

In 1895 and 1896, I tried to breed mules between an Indigo Bunting and a Canary. In 1895 the Bunting was incessantly pairing with the Finch, and, whenever she built, he hindered her continually by pulling out the nest almost as fast as she completed it; when she laid he pulled the nest over the eggs so that they never got properly incubated. At length, when I removed the Indigo Bunting, the Canary was so much exhausted that she did not sit steadily, so that no result



PILEATED FINCH, (*Coryphospingus pileatus*) ♂
RED-CRESTED FINCH, (*Coryphospingus cristatus*) ♂. ♀.

followed. In 1896 I turned both birds into an out-door aviary; here again the hen built and the Bunting pulled her nest out. I then turned in a cock Canary when the Bunting's wife promptly deserted him, paired with her natural mate and reared three young, of which two survived: these showed no taint of the Indigo Bunting.

The illustration of the cock bird is from the skin of a specimen formerly living in the author's collection and from two living examples.

THE RED-CRESTED FINCH.

Coryphospingus cristatus, GMEL.

ALTHOUGH not uncommon at Buenos Ayres, this beautiful little Bunting seems to be rarely imported. In 1893 I received three cock birds in a consignment from La Plata, but they reached me somewhat out of condition and required careful attention to restore them to vigour; indeed, even when they had apparently quite recovered from the effects of the journey, one specimen, which I exchanged for two hens of the Pileated Finch, shortly afterwards died, and as winter approached a second became asthmatic and sleepy, and was only restored to comparative health by the use of brandy and glycerine mixed with its drinking water.*

The general colour of the upper surface of the male is lake-brown, more crimson on the head and towards the tail; the wing-coverts are brown, the edges tinted with lake-reddish; the primary-coverts and flight-feathers dull brown, with narrow crimson-tinted edges; the tail-feathers blackish, similarly edged: a black-edged satiny carmine crest on the crown, as in *C. pileatus*; lores and feathers round the eye dusky; eyelid whitish; base of cheeks and chin whitish; back of cheeks, throat and under surface of body crimson-lake; thighs somewhat greyish; under wing-coverts whitish; axillaries somewhat greyish; flights below

* When any bird is so far gone that, at the approach of darkness, it retires to a corner, and (turning its face to the wall) appears to be occupied with devotions, there is nothing like three or four drops of brandy and water (half and half) for recovering it.

dusky, with greyish inner edges; beak and legs pale slate-grey; upper mandible darker; iris sepia-brown. Length $5\frac{1}{2}$ inches.

Dr. Sharpe thus describes the hen:—"Much duller in colour than the male, and wanting the crimson crest. General colour above brown, including the head; the rump and upper tail-coverts vinous red; wing-coverts like the back; quills and tail feathers edged with brown; lores ashy whitish; ear-coverts brown tinged with vinous; cheeks and under surface of body pale vinous; browner on the fore-neck and breast. Total length $6\frac{7}{16}$ inches."

The Red-crested Finch is found in Brazil, to Bolivia and Peru and northward to the Amazons and Guiana.

Mr. E. W. White (*P. Z. S.* 1882, p. 599) mentions having shot this species "in an open country dotted with thickets of low brushwood, in which it skips about." This is very expressive of the action of *Coryphospingus*, it moves by long jumps, often using its wings, somewhat after the manner of *Liothrix* and *Accentor*.

Mr. Hudson does not seem to have met with *Coryphospingus*, for he gives no new facts respecting it in his *Argentine Ornithology*.

The dealer who sent my birds home evidently fed them upon a mixture of canary, linseed, and German rape: but I generally gave them canary, white millet, inga seed, and Paddy rice, with which they were less wasteful; they also had a few mealworms and cockroaches daily. Soft food they did not appear to care for; though insects of all kinds put them into a great state of excitement, causing the fiery crests on their heads to rise, like that on the head of a Skylark.

I have never heard these birds sing; but the call-note, or notes (for there are two) are frequently repeated after the manner of those of our Chiff-Chaff; only they are low, plaintive, and musical, and sound somewhat like the words "*We-two*," with a jerkiness in the first word, then a pause and then the "*two*." As a matter of fact this statement by the birds was hardly correct, for there were more than two in their cage, as I had paired them with my hen Pileated Finches, with which they lived in perfect amity.

The cage in which these birds were kept measures three feet in length, twenty inches in height, and eighteen in depth from front to back; a deep nest-box is fixed up in one corner and partly filled with hay and moss: to this snuggerly the cock Red-crested Finches occasionally retired; but the chances are that Pileated Finches would breed more readily in some sort of bush.

Burmeister tells us that the Red-crested Finch "lives in pairs during the summer; but in winter, in little bands on uncultivated fields

of thistles; it nests in dense scrub, tolerably high up, and lays three to four white eggs, mottled with grey-brown from the obtuse to the pointed end."

"This beautiful bird is eagerly sought to keep in cages, in which it thrives well and is fed upon crushed maize."*

Layard shot an example of *C. cristatus* at Pará, where he saw it on low shrubs in a deserted garden.

This and the Pileated Finch are rather difficult to catch by hand, in a cage: the first time I put my hand over the Red-crested Finch, even though he was ill, he managed to slide through my fingers, and, being in moult at the time, left all his tail feathers on the sand; the second time, my bird was well up the wire and just turning to leap on to the perch when I got fairly hold of him.

In December, the second of my specimens, already adverted to at the commencement of the present article, became decidedly ill: his difficulty of breathing ceased to yield to remedies, this was followed by cramp and ended fatally on Christmas morning: the third bird also showed symptoms of pneumonia, which eventually terminated in death on the 10th January, 1894, and one of the Pileated Finch hens became dull and listless in consequence probably of the damp cold nights, although the temperature of their cage up to the middle of December can rarely have been far under 60 degrees Fahr.; it died at the end of the month.

Coryphospingus cristatus is a very wasteful bird, he will jump right into a saucer of seed and scatter it far and wide, after the manner of a Goldfinch or Siskin: then having thrown the whole over on to the sand, he will hop about at his leisure and select his favourite seeds: doubtless it is more natural to him to pick up his food upon the sand, but it is not conducive to his health to do so in a confined area. Even the use of seed-hoppers will not avail, for a wasteful bird will stir away at these until they are empty, as I have repeatedly observed in my aviaries.

It has been suggested by some fanciers that if each kind of seed is given in a separate receptacle, the birds will eat steadily without waste. Unfortunately birds are like babies, they are not greatly given to reflection; therefore they do not recognise the fact that each dish is distinct from the other. Let these plausible theorists try the experiment, and they will discover the fact that a wasteful bird will always scatter his seed; whereas such birds as the Bluish-Finch and

* I found that my birds would not touch this food; nor did they seem to care for any soft food.

its near allies, the Cow-birds and many Parrakeets, not only eat without waste, but drop all the husks into the food-pan, until the seed is so completely hidden, that they are compelled to stir it over in order to feed at all.

Dr. Russ mentions the fact that several pairs of this species have been imported since 1880, and states that, "according to Dr. Frenzel, it is strong and long-lived, quiet and tranquil, the song sounds like 'tsjie view,' often repeated." I make it "*we two*," not *tsce view*; but perhaps there may be little variations in the initial sounds of the soft notes uttered by different individuals of the species; moreover the song is so low that, in the vicinity of other louder-voiced birds, it must be listened for to be noticed at all: it is rather plaintive in tone, and would give one the impression that the bird was unhappy; but so would that of the Parson-Finch, one of the most self-satisfied and jolliest little rascals in the whole feathered world.

Mr. Horatio R. Fillmer, wrote in January, 1894, respecting a specimen of *C. cristatus* which he obtained in 1893, as follows:—"I bought my bird from Mr. Dashwood, of Beccles, last May; Mr. Dashwood disposed of him because he was too quarrelsome to keep with his other birds, and at his age (86 or 87) he cannot be troubled with more than one or two cages to attend to."

"The bird was purchased from Arrowsmith, of Blackwall Pier, in the Autumn of 1892, in wretched condition, and was called by him a 'South American Crimson Finch.'"

"Mr. Dashwood got him through the moult with great difficulty and fed him too liberally on soft food. He told me that he fed him on 'millet and canary seed, and a teaspoonful of Abrahams' Food for Insectivorous birds in a little tin, besides two or three mealworms daily.' But I found that he would scarcely touch canary or white millet and only a very little spray millet; and, rather than let him starve, I had to feed him chiefly on preserved egg and mealworms. I did all I could to get him to take more seed, but he would not; and the too liberal supply of animal food of course disagreed with him and he died of inflammation of the bowels."

"It was a very tame bird and would take mealworms or flies from the fingers; we never gave flies in any other way; it was prodigiously fond of them. It was certainly less lively than the Pileated Finch; it seldom displayed its crest. I was very fond of it and its death much distressed me."

It was a new fact to me that the Red-crested Finch was quarrelsome; in the cage with my three, when imported, there were three

Bluish-Finches, a Siskin and an Argentine Saffron-Finch; with the exception of the last mentioned, I kept all together for a day or two; but noticed nothing in the nature of a dispute: subsequently, however, the Red-crested Finches only had Pileated Finches as companions; and with these they agreed perfectly.

The above noted quarrelsome behaviour may have been due to two causes, either an individual of a species may be exceptionally bad tempered; or there may be some particular species to which it has a deep-seated inborn aversion; as, for instance, the American Nonpareil has to the Indigo Finch. Probably, in the case of Mr. Fillmer's bird, the ill-temper was in part due to a disordered liver, since it refused its natural seed diet.

The male is illustrated from living specimens formerly in the author's possession and the details filled in from their skins after death.

THE PILEATED FINCH,

Coryphospingus pileatus, NEUW.

THIS lively little Bunting is a native of Brazil, to Venezuela and Colombia. The male above is dark slate-grey, paler towards the tail, the greater and primary coverts and the flight feathers are black-brown, greyish externally; the tail feathers black; the top of the head is black with a broad central band of bright satiny carmine feathers, which can be erected into a crest at pleasure; lores greyish white; eye brown-grey; eyelid white; ear-coverts slate-grey; cheeks pale grey, white in front; throat and breast pale grey, whiter on the chin; abdomen white; sides of body grey; under tail- and wing-coverts and axillaries white; flight feathers below dusky with whitish inner edges; tail feathers below black; with greyish tips: Length $5\frac{1}{2}$ inches; upper mandible greyish horn-brown, lower reddish white; legs brownish flesh tint; iris greyish brown.

The hen is altogether browner than the cock and has the crest brown; it measures $4\frac{1}{2}$ inches in length.

Burmeister writes respecting the Pileated Finch:—"This attractive bird was not rare in Minas Geraes, at Congonhas and Lagoa, though not common. It lives in forest clearings or high scrub and in the summer unites in pairs: in winter more singly or else in little bands. It feeds on seeds of weeds and from time to time utters a tiny call-note, but never a song. I have not obtained its nest."

Speaking of this bird at Bahia, Neuwied says:—"Here it was not rare, one noticed it on open places overgrown with high grass and many kinds of weeds; also in bushes of various pasture lands."

Here it lives in pairs, and after the breeding season unites into little companies, hops about on the twigs, utters its short call note and lets a feeble song be heard.

Males and females appear, at first sight, to resemble one another entirely; then upon closer inspection one notices the elegant bright red crest of the former, especially if it is raised in excitement. This charming bird is found abundantly in the company of other Finches, and the little Grosbeaks. Their food consists of many seeds of plants, on which account they are called *Papa-Capim* by the Brazilians. They also hop about the shrubs like our Linnets."

It seems strange, seeing that Neuwied must have had numerous opportunities of observing this species when breeding, that he gives no information respecting its nest or eggs.

Dr. Russ says that in 1874, Dr. Bodinus received from Geoffroy de St. Hilaire four examples of this previously unimported bird; then in 1877 pairs found their way to the bird-rooms of Dr. Franken, A. F. Wiener, and his own; and several to the Zoological Gardens, of London.

Disposition similar to that of the Jamaica Finch, "yet more agreeable and gentle. Only utters occasionally a harsh penetrating chirp. With Dr. Franken a pair got as far as eggs, but not young. Hitherto it has not been bred. Long-lived, active, slippery, dexterously sliding through the scrub, and peaceable."

I found my hen Pileated Finches considerably more active than the cock Red-crested Finches; but doubtless they were in better health when I received them. When excited they erected the feathers of the crown in the same manner as the cock-birds; only the crest, not being brightly coloured, was less strikingly beautiful; though it gave an all-awake sort of character to its owner, which was rather pleasing. They are lovable, confiding little creatures, always on the look out for

a mealworm the first thing in the morning: their call-note is a sharp decided *tsip*.*

In the *Gefiederte Welt* for the 27th August, 1891, Dr. Russ tells us that Mr. Richard Stichler, of Kötzschenbroda, in Saxony, kindly forwarded to him, on the 17th day of the month, a nest of *C. pileatus*, which previously had been unknown.

The nest was built on a dry pine branch and was somewhat roughly constructed of threads of sacking, thin straws, fine shavings, fibres of Manilla hemp and little tufts of lint, but neatly lined inside with fibres of Manilla hemp.

The nest belonged to a brood, one of which had flown, and the parents had again gone to nest. The young bird flew on the 13th June.

I found my sole remaining hen very timid whilst caged, as will be evident from the following fact:—One of the three Green Avadavats which were associated with a Cordon Bleu and a Zebra Waxbill in one of my large breeding-cages escaped from its cage one day, through the opening left by the sand-tray which was then being cleansed. After some little trouble it was captured, and I then discovered that its companions of the same species had amused themselves by plucking it bare from the shoulders to the breastbone, with the exception of its wings and tail. No wonder it had striven to escape on the first opportunity! I turned this little bird into my Ornamental-Finch aviary, and in the morning found it in the midst of four of its own species, who were chasing it from pillar to post—playing the rough game, called “No child of mine,” with it, in short.

Being at a loss to know what to do with the miserable looking little scare-crow, which had now lost the feathers from the back of its neck, I turned it in with *Coryphospingus pileatus* and hoped that the latter would be kind to it. Poor Pileated Finch! In five minutes the impudent little vagrant was chasing its hostess all over the cage, never being able to catch her, but evidently enjoying the fun of seeing the bird twice its own size dashing away from its impetuous rushes. At intervals day after day this would be repeated, but whether from spite or for mere sport, it would be hard to say. Anyhow the Pileated Finch always seemed startled and fled precipitately from the Waxbill.

In an aviary this same bird lost all its timidity and even sometimes ventured to dispute with birds larger than the Green Avadavat; it also took kindly to soft food put in for Canaries. As I write (late in 1897)

* I wrote this down with the bird uttering the note at my side, so that I know it to be true; to call it “a harsh chirp” is, I think, too bad, but it is “penetrating.”

this bird is still in magnificent health, having outlived several husbands.

Illustrated from a living specimen and a skin in the author's collection.

THE GREEN CARDINAL,

Gubernatrix cristata VIEILL.

[**NHABITS** the Argentine Republic to Northern Patagonia.

The adult male above is yellowish green, with the shoulders and anterior part of back streaked with black; the lesser wing-coverts, towards the top of the wing, golden yellow; median coverts black, tipped with yellow and bordered externally with green; greater coverts and inner secondaries blackish, yellowish green externally, yellow on the margins and whitish towards the tips; bastard wing, primary coverts and quills blackish, edged with yellowish green; purer yellow on the primaries, which have whitish edges to the outer webs; upper tail coverts dusky, greenish externally; central tail-feathers blackish, edged with yellowish green; the next pair blackish, with a yellow spot at the end of the inner web; the remainder yellow with blackish shafts, the outer feather streaked with black at the end of the outer web; centre of crown black, crested; occiput yellow; nape and back of neck uniform yellowish green; lores black; a broad eyebrow and the eyelid golden yellow; a black spot behind the eye; ear-coverts uniform yellowish green; cheeks golden yellow; throat black; sides and front of neck golden yellow; chest and sides of body yellowish green; breast, abdomen and under tail-coverts golden yellow; thighs yellow; under wing-coverts and axillaries golden yellow; quills below blackish, yellow along the inner edge. Length $7\frac{1}{10}$ inches; beak slate-grey, the upper mandible inclining to black; legs slate-grey; iris black, or nearly so.

The hen, of which I received a very fine example from La Plata in 1893, differs in its paler, duller, and browner colouring; a broad



GREEN CARDINAL ♀. ♂♂.
(*Gubernatrix cristata*.)

streak from the beak over the eye, the eyelid, a broad moustache bounded by the cheeks and the black patch on the throat, and a narrow collar bordering the latter, snow-white.

Both sexes of this species sing fairly well; but the song is extremely like that of the Red-headed Cardinals, and consequently is not remarkable for melody. When other birds are singing on a sunny morning, these Cardinals usually accompany them.

Mr. Hudson, who calls this species the "Yellow Cardinal," says that it "is a graceful sprightly bird, with a strong melodious voice, and is one of our favourite cage-birds. It visits Buenos Ayres in small flocks in spring, but is a rare bird with us. There is little variety in its song, which is composed of four or five mellow notes of great power, and in tone somewhat like the whistle of the Blackbird of Europe."

This is almost exactly what Mr. White says of the Red-crested Cardinal, as observed by him, also in the Argentine Republic. Now it seems to me highly improbable that a bird, which in its own country has a clear flute-like song, for that is what our Blackbird has, should when brought to our more northern country invariably contract such a severe cold, that its song should resemble nothing more exactly than the rapid screwing round of a rather tight glass stopper in a bottle. Besides, why has not the severe cold affected the call-note which is clear and bright?

I am afraid the true explanation lies in the fact that, in a country where most bird-songs are third-class, anything which arrests the attention, immediately suggests something yet better at home. Perhaps, I may be a little jealous of the reputation of our Blackbird, which to my mind is unapproached by our other British Thrushes, as regards melody; but, even if it were true that the Cardinals sang better in their own country than here, it would be hardly possible that any seed-eating bird could produce the pure melodious whistle of a soft-billed songster.

Herr Wiener says that the Green Cardinals in his aviary always built their nests in a cigar box, without the least shyness. "Three or four light blue eggs, with dark brown spots, were laid and assiduously hatched by the hen, the tip of whose bill could just be seen projecting over the edge of the front part of the improvised nest-box. About fourteen or sixteen days matured the eggs, and the young birds were well nurtured by both their parents. But a liberal supply of mealworms generally doomed the young brood to an early death, and stimulated the old birds to lay again. Cautioned by

experience, I avoided mealworms and by the substitution of fresh ants' eggs, egg-food mixed with soaked ants' eggs, and Thrushes' food succeeded in bringing up several birds."

According to Wiener his Thrushes were fed the first thing in the morning on stale household bread soaked in water overnight, pressed out by hand, mixed with one third the quantity of Scotch oatmeal and a little boiled milk. An hour or two later a mixture of German paste, dry bread-crumbs, ants' eggs, currants and egg; and about mid-day a few morsels of raw beef cut very fine. He then proceeds to tell us what German paste consists of.

Altogether, according to his own showing, Herr Wiener's Thrush food consists of the following ingredients:—Sop, oatmeal, peameal, treacle, milk, egg, lard, raw beef, currants, ants' eggs, hemp and maw seed. I cannot believe that his Cardinals devoured this awful mixture and survived: he must surely have had some other Thrushes' food which he tells us nothing about.

My own mixture for Thrushes is as follows:—Stale breadcrumbs and boiled potato (passed through a masher) of each two parts, Abrahams' food, preserved yolk of egg, ants' eggs and so-called "dried flies" (actually foreign spittle-bugs) of each one part. I have not the least doubt that Cardinals could rear their young on this food alone; but I should certainly give a few mealworms, young Cockroaches, or any other insects in moderation.

Lest some inexperienced fancier should be tempted to give Herr Wiener's Thrushes' food to Finches; I would ask him first to consider, that what Nature is opposed to, cannot be beneficial. No birds, excepting such as are predatory, namely, Hawks, Crows, Shrikes, or Tits, should be fed upon raw meat: this rule, which is constantly broken by fanciers (even by the most experienced), is based upon common sense, and cannot be too strenuously insisted on.

Some of the most successful Bird-keepers, after recommending that birds should receive, as nearly as possible, the same food which they would obtain when wild; proceed immediately to advise that a mixture of scraped raw beef, or bullock's heart, with sundry other things should be given daily: they seem to be unable to see any difference between a caterpillar and a bullock, excepting in size. It is all a mistake: I have reared and kept purely insectivorous birds, for years, in perfect vigorous health without a particle of flesh; but one of these, which I sent to a show, had raw meat given to him; with the result, that he had almost incessant fits until the day after the show closed; when he died in convulsions.

Now this long, but very necessary, digression, has taken us right away from the Green Cardinal; but if it should prevent some of these grand birds being poisoned, it will have served a good purpose.

Dr. Russ says that this bird "was first reared in the Zoological Garden in Cologne, and afterwards in many bird-rooms. It nests easily and for the most part with good results, scarcely allows itself to be disturbed by quantities of other birds. *Nests* always being arranged, a basket or other receptacle, with usually only a layer of rough materials carelessly dragged together by the male bird. *Laying* four to six eggs, light greenish-blue, speckled and spotted with black brown.* *Incubation* fourteen days. The male relieves the female and feeds her, but not regularly. Young nourished by both. *Young Plumage* duller and greyer than that of the female, and below spotted with grey, Thrush-fashion. Not so hardy as other Cardinals, can scarcely put up well with cold and damp together; in other respects after acclimatization, enduring and strong. Song loud and euphonious, yet monotonous. Malicious towards smaller associates." "Tolerably regularly imported every year, but only in a few pairs or singly."

In his *Fremdländischen Stubenvögel* Dr. Russ tells us, that a pair of Green Cardinals is scarcely disturbed by larger birds, that in the Berlin Zoological Garden they went to nest in an aviary occupied by fowls, pigeons, and even Glossy Starlings; and in his bird-room succeeded in driving a pair of Bloodrump Parrakeets from the vicinity of their nest. He also says that Major Alexander von Homeyer defines the song as loud and euphonious: "*spia, speut, spia, spia*" (which in English would be "*speea, spoit, speea, speea*") a quite improbable sound to come from any bird excepting a Parrot. Try to whistle a word beginning with the consonants *sp*; take for instance the absurd rendering of a Chaffinch's call-note "*spink*," and see whether it can be produced either by a human or any other whistled effort. It cannot be done, and never was done, by man or bird: "*chich*" with a slight metallic *n*-like sound (quite undefined) before the terminal *ch*, best represents the note of the Chaffinch; and the *sp*, in the Cardinal's song is more probably *phw*, a very common commencement to whistled notes, the *p* being scarcely sounded, less indeed than in the Scotch pronunciation of *which*, and other words in which the letters *wh* stand first.

* My hen bird in 1894 laid a good many pale green eggs, spotted at the larger end with black: she built in an inverted Hartz Canary-cage with the bottom knocked out, so that it formed a kind of deep open basket. In 1895 I was successful in rearing one young bird, but it died when full grown from trusting wholly to its parents to feed it.—A.G.B.

If a bird's song is to be rendered in words; in the name of common sense, let them be such words as can be fairly expressed by whistling, or at any rate can be indicated by that process.

The hen bird is illustrated from a beautiful living example in the author's collection.

THE YELLOW-BILLED CARDINAL,

Paroaria capitata, D'ORB.

ALSO called the "Brown-throated" and the "Lesser Cardinal"; but the first of these is a misnomer, inasmuch as the throat is distinctly black on the upper surface of the feathers: indeed, it would be far more applicable either to *P. gularis* or *P. cervicalis*, in both of which species the black throat-feathers have reddish bases. *P. capitata* inhabits Brazil, Paraguay, and the Argentine Republic.

As, with the Dominican Cardinal, this bird has the head, including the chin vivid carmine, the throat black, extending to a point on either side of the cheeks, where (in life) it disappears behind the red feathering, and tapering almost to a point on the breast; general colour above slaty-black; feathers of the nape white at their bases; the rump slightly mottled with grey and with the lateral plumes white-tipped; wing-coverts, quills and tail feathers black; the inner web of the outer tail feather narrowly fringed at the end with white; sides of neck pure white, tapering almost to the nape, and continuous with the pure white of the under-surface; which, as in the other species, is slightly tinged with grey on the sides and flanks; the latter mottled with dusky bars; thighs white in front, black behind; under wing coverts and under tail coverts white, a patch of black near the edge of the wing; quills below dusky, with ashy inner edges; beak bright ochreous yellow; legs flesh-pink; iris fiery chestnut.* Length $6\frac{1}{2}$ inches. Female like the male.

* I took the colouring of the beak, legs and iris from my bird two minutes after its death, and therefore am certain of its accuracy.—A.G.B.



YELLOW-BILLED CARDINAL.
(*Paroaria capitata*.)

The young bird differs much as in the preceding species. I imported a handsome young cock of this bird from La Plata early in 1893: it makes a gentle and lively little cage-bird, and seems not at all of a delicate constitution. At the same time, as it is a species which is now seldom imported, I should not care to recommend keeping it in an unheated aviary during the winter months. Unhappily, I no longer have the opportunity of doing so if I would.

Herr Wiener remarks:—"In 1873 the Zoological Gardens purchased a pair of Yellow-billed Cardinals, which about that time were imported now and then, but have lately disappeared again from the market." It is probable, however, that they never were sent to Europe in great numbers. Being rarer and more local than the Red-crested Cardinal, *P. capitata* may also be less attractive to the bird-catchers, owing to the absence of a crest to its brighter red head, and to the black instead of red throat; although to the eye of one trained to admire harmonious combinations of colour, the juxtaposition of carmine, black and snow-white are extremely beautiful. Scientific writers speak of the crest of this species, and even represent it with the red feathering raised above the nape; but, in life, this lies perfectly flat, and cannot be erected at will.

In his notes to the *Argentine Ornithology*, Mr. Hudson gives no facts, from personal observation, respecting this bird; having, in all probability, not met with it; he merely quotes the following from Dr. Burmeister:—"This species is not uncommon near Paraná, where it occurs in small flocks on the river-bank, and is often seen on the stones at the river's edge."

Mr. E. W. White seems never to have met with *P. capitata* in a wild state, for he says:—"The exact locality of this species is unknown to me, as I obtained it alive from a bird fancier in Buenos Ayres; but most probably it came from some part of the province of Corrientes."

In his *Handbook*, Dr. Russ merely mentions the fact that this species is occasionally imported, and says that "its price is very high—about 60 marks (nearly £3) the pair." In London it would probably be decidedly higher, but it is hardly ever imported.

The Yellow-billed Cardinal, when associated with *P. cucullata*, has a wholesome respect for his Red-crested cousin and usually keeps out of his way; but the sight of a mealworm temporarily dispels his fears, and he dashes down and seizes it the moment it is offered: but a second one he discreetly permits *P. cucullata* to take possession of; he clearly comprehends the difference between *meum* and *tuum*.

In his *Fremdländischen Stubenvögel*, Dr. Russ, quoting from Burmeister, says "that the egg is white, dotted with grey-brown." From

my short experience of this very handsome little Cardinal, I should judge it to be less delicate than *P. cucullata*; it is certainly tamer and more gentle, nor do I think that it would prove very aggressive in an aviary with birds of nearly its own size.

My bird would frequently fly down from his perch and take a mealworm from my fingers; but not when strangers were present: he was very fond of hanging upon the wire front of his cage near the roof, by which means he was able to get a good view of a large flight cage containing five examples of *P. cucullata* (the Red-crested Cardinal). At times, but especially when the sun was shining, he would sing as he clung to the wire netting: he is decidedly the prettiest of all the Cardinals and ought to be more freely imported; but his rarity as a cage-bird, even in South America, seems to show that very few specimens are obtained by the native bird-catchers. It is a marvel to me that captains of ships regularly trading between Buenos Ayres and Liverpool, do not make a point of ransacking the market, each time they visit the former town, and picking up the individual examples of this and other rare species, which must, from time to time, be offered for sale. It would require no great strain, even upon a very weak intellect, to remember which the valuable species were, and it would certainly be a very fair investment for a little idle capital. Most sailors are by no means stupid, indeed their very profession requires them to be wide awake and intelligent, and the masters of Merchant-ships are as a class well-educated and shrewd; to these, it would be easy enough to learn the characteristics of the rarer birds of the Buenos Ayres market, in a few minutes, and the information could readily be obtained from any experienced lover of foreign birds.

The illustration is taken from a lovely example of the cock, lately living in the author's collection. The bird died on the 26th February, 1894; thus the details were completed from the skin.



DOMINICAN CARDINAL
(*Paroaria larvata*.)

THE DOMINICAN CARDINAL.

Paroaria larvata, BODD.

ALSO called "Pope" by dealers: though it would be difficult to say why it should have a greater claim to that title, than the other red-headed species. *P. larvata* is a native of Brazil and nearly resembles *P. cucullata* excepting in the absence of a crest: its head, chin, and throat are scarlet, the hind-margin of the ear-coverts black; the back of the neck white with broad black edges to the feathers; remainder of upper surface slate-grey; but the feathers of the mantle edged with black; the wing and primary coverts black; the flight feathers and upper tail coverts black, edged with grey; the tail feathers blackish, fringed externally towards the base with grey and tipped with white; outer rectrices brown; sides of neck and whole under surface of body pure white; the sides and flanks stained with greyish; under surface of wings and tail greyish white; upper mandible dark brown, lower mandible yellow, brown at tip; legs blackish; iris hazel.

The hen resembles the cock; but the primaries have narrower white edges to the outer webs and the beak is longer, with less arched culmen: the young bird is much browner in colouring, with the scarlet of the head and throat replaced by a cinnamon tint.

This very abundant and beautiful Cardinal is a favourite cage-bird among the Brazilians, and formerly was imported in considerable numbers into this country; but of late years the importation of this species seems to have greatly fallen off, though it still arrives occasionally; I purchased a specimen in February, 1894, and had a second specimen given to me in 1895.

According to Maximilian Prinz zu Wied, "These birds are not rare at Bahia; they are very simple, quiet creatures, with a clear call-note and a little twittering song. In that region they are often kept in cages, wherein they thrive, the food being ground rice and maize. At Bahia, and also among the Spaniards in Paraguay, the name is *Cardinal*."

Mr W. A. Forbes, speaking of this species as observed by him at Pernambuco, says "It is usually seen singly or in pairs in the

more or less cleared and open ground near cultivation. Many dozens are brought into the market at Recife to sell as cage-birds. The Brazilians call it *Gallo da campina*."

Mr. Edward Bartlett, from whose valuable (though unfortunately incomplete) work, I have borrowed the foregoing notes on this species; says—"Although my researches for details respecting these birds extend over nineteen years, I have been unable to find any reliable information concerning the nidification of this species in a wild state."

Why Mr. Bartlett should assert that *P. larvata* has no song, whilst at the same time quoting a contrary statement by another naturalist, does not seem clear; but I should be inclined to believe that he based his observation upon birds imported when old enough to sulk; for both sexes undoubtedly sing, as I have proved.

According to Burmeister *P. dominicana* "lives singly in thickets and is nowhere very plentiful."

Neuwied seems to have a different experience:—"This beautiful bird is well known and quantities are kept in cages," and a little further on he continues:—"This bird was first met with by me throughout the whole town of Bahia (San Salvador); it, however, descends across Brazil to Paraguay, as we know through Azara. At Bahia these birds are not rare. They are quiet, foolish creatures; but have a clear call-note and little chirping song. In every district people keep numbers of them in cages, where they do well, they are fed on crushed rice and maize. At Bahia they are called *Cardinal*, as also by the Spaniards in Paraguay."

Here again we have evidence that this species sings, and Neuwied calls its performance a "zwitschernder Gesang," which proves that it must be somewhat similar in character to that of its allies.

Dr. Russ describes the eggs as pale green, spotted and speckled with brownish; the nesting habits similar to those of *P. cucullata*, but the disposition of the bird less spiteful, the song more tuneful, less dissonant, yet not rich in variations. It is, moreover, more generally bred. In 1895 I found the shell of an egg, coloured as Dr. Russ describes, in an aviary occupied by a pair of this species, but the birds never formed a proper nest, although they continually carried hay into a basket and pulled it out again.

The Illustration is from an example in the author's collection.



RED-CRESTED CARDINAL.
(*Paroaria cucullata*.)

THE RED-CRESTED CARDINAL.

Paroaria cucullata, LATH.

THIS lively, and somewhat excitable, bird inhabits Southern Brazil and the Argentine Republic to Bolivia: its brightness both of disposition and colouring make it a favourite cage-bird. The head, crest, and throat, are bright scarlet in the adult bird; the upper surface generally is slate grey, darker on the nape and tail-coverts; the feathers of the nape and mantle are ornamented with elongated oval white central spots; the sides of the neck and under parts generally are white; the flight feathers of the wings are black, edged externally with ashy grey; the tail feathers black, fringed with grey; the sides of the body and flanks are slightly stained with grey; wing and tail feathers below dark slate grey: beak almost white, dusky on the dorsal part of the upper mandible, legs sooty grey, iris black. Length seven and a half inches.

The female is like the male, but slightly less brilliant in colouring; beak longer, with culmen less arched. Young birds have the scarlet of the head and throat represented by dirty buff. Mr. E. W. White, in a paper on birds from the Argentine Republic observes, that it is "a tolerably common bird in the upper Riverine provinces: and much kept as a cage-bird in Buenos Ayres: as it has a very fine whistle, almost rivalling that of the English Blackbird in power, but not in variety."

It passes my comprehension how Englishmen, when travelling in America, can thus libel the birds of their native land. I have had four pairs of Red-crested Cardinals at various times, and those which I first possessed did not sing at all, but simply cocked their heads on one side and uttered a clear whistle; occasionally with two notes, but usually only one; which I translated as "*Well!*" evidently used in the sense of "*Halloa!*" This I formerly supposed to be the limit of the bird's power, as a vocalist; though it is evidently only its call-note.

A bird which I imported from La Plata in nestling plumage, and which subsequently came into grand colour; first introduced me to

the true song: it is a cheerful scroopy whistling, interspersed with a few jerky clear notes. All the South American species, so far as I know them, sing precisely alike; nor can their song be readily distinguished from that of the Saffron Finch, excepting in its brevity.

The traveller will probably explain that, in their native wilds, birds sing much better than in captivity. Sometimes this is so, sometimes the reverse is the case. But, however, freedom and native air might act upon a Red-crested Cardinal, they could no more abolish the stopper-screwing scroopiness from its song, than they do in the case of our native Corn Bunting.

According to Burmeister, this species "inhabits, singly or in pairs, the damp bushy plains on the borders of the large rivers in the interior of Brazil, namely the Rio St. Francisco below its confluence with the Rio das Velhas."

"The bird is found in an area, which extends southwards as far as Monte Video, and makes its nest in dense thickets, builds a fairly large nest with dry stalks, at a moderate height, and lays three to four longish oval white eggs, closely sprinkled with greyish-green spots, darkest at the larger end."

Other writers speak of it as a wood-frequenting bird, rarely seen either in the plains or swamps. Its nesting season is from the end of October to the middle of November.

The nest, according to Mr. E. Gibson, "is generally placed at the end of a branch of a tala tree, about eight or ten feet from the ground. It is a large shallow construction, built of wild vine tendrils or twigs and wood, and lined with horse-hair. Sometimes the last material greatly predominates; and I have then seen the nest so frail that one could see through the bottom of it. The uneasy approaches of the birds frequently betray its situation, should an intruder appear in the vicinity. Three is the largest and most usual number of eggs laid. The clutches of eggs vary greatly in appearance, and still more so in size."

Mr. Gibson states further, that the commonest type of egg is of a brownish ground-colour, thickly marked with brown spots; whilst others have a greenish ground-colour, with the spots inclining towards the larger end, where they also form a dark zone. The latter would nearly resemble those described by Burmeister.

Mr. Hudson says of this species, as observed by him in the Argentines:—"The song has little variety, but is remarkably loud, and has that cheerful ring which most people admire in their caged pets, possibly because it produces the idea in the listener's mind that the

songster is glad to be a prisoner. As a cage-bird this Finch enjoys an extraordinary popularity; and a stranger in Buenos Ayres, seeing the numbers that are exposed for sale, by the bird-dealers in the markets of that city, might fancy that a Cardinal in a cage is considered a necessary part of the *ménage* of every house in the country. This large supply of caged-birds comes from South Brazil, Paraguay, and the north-eastern part of the Argentine country, where the Cardinals are most abundant and unite in large flocks. Probably they are not snared, but taken when young from the nest, as most of the birds exposed for sale are in immature plumage."

The best seeds on which to feed this and the other South American Cardinals are canary, oats, small sunflower seeds, melon seeds (of which they are very fond), millet, thistle and a little hemp.* Thistle seeds are a favourite food with them in their wild state.

I kept my first pair of Red-crested Cardinals in an aviary with a Rosella Parrakeet, and a pair of Grey-headed Love-Birds. The cock bird had a bad time of it, as both Parrakeet and Love-Birds were constantly going for him: eventually matters came to a crisis,—the hen Love-Bird began to make a practice of disappearing into a nesting log, and the Cardinal, I suppose, began to wonder what she did it for, and when she slipped into the hole in the log, he would fly across and take a peep into the hole to see what had become of her; this used to greatly irritate the Grey-head, nor can one blame him for his indignation. One morning when I entered my bird room and glanced round, I discovered the two birds, Grey-head and Red-head, in deadly combat, and in spite of its superior size and strong pointed beak, the latter had already had very much the worst of the fray; his feathers were lying about, nearly all his toes had been bitten through, and his thigh was severely wounded and bleeding profusely: he was well nigh spent when I went and picked him up; so I had to cage him up separately: he soon recovered his spirits, but not his claws, and thus he lived for fully a year longer.

The Love-Birds never attacked the hen, and as for the Rosella, he seemed to think her a queer sort of female of his own species; for he was always making up to her, bowing and dancing to her and pawing her back in a clumsy fashion; treatment to which she showed her dislike, by pecking at him somewhat viciously: this love-making between so ill-assorted a pair was one of the most laughable sights I think I ever

* Some fanciers have objected to this seed, under the mistaken notion that it affects the colouring; if they could see my birds, they would have to retract their own assertions, which can hardly be based on personal experience. Canary, with a little hemp, are sufficient to keep them in health.—A.G.B.

witnessed. Eventually she caught cold and died, whereat the Parrakeet was greatly distressed and moped for several days.

Dr. Russ says that this Cardinal is "easily bred, but not with certainty. First bred by Dr. Bodinus, then living in Cologne. Both consorts build the nest.* The male relieves the female in incubation. *The nest* and all the breeding details similar to that of the foregoing (The Virginian Cardinal). *Laying* three to six eggs; pale greenish, sprinkled with brownish or greenish-grey. *Nestling down* sparse, white. *Young plumage* faint greyish white; head dull brownish red-grey; whole underside almost pure white. *Change in colour* like that of the preceding species. *Song* pleasing, but interrupted by long-drawn scroopy-sounding, unlovely notes. Sprightly, graceful, vivacious, often very excitable; spiteful towards smaller birds. Strong and enduring."

A pair of Red-crested Cardinals belonging to Mr. J. Housden, of Sydenham, went to nest in 1893, in a small box hung on the wall of the aviary. At first he was not aware that they were thus engaged, but the behaviour of the hen bird drew his attention to the fact. Whenever he or his boy-assistant entered the aviary and approached the nest-box, the hen stood in a defiant attitude with wings half spread and open beak, uttering a sibilant cry of rage. The eggs were incubated for fourteen days, and one of the young ones was nourished until tolerably well feathered, when it was found dead upon the sand; having probably fallen out of the nest: the other young died early. In 1895 a pair in one of my aviaries built a strong open nest, in twigs nailed against the wall; the hen used to scramble through the twigs, sit down and turn round in the nest; but, if the cock approached her singing, she immediately flew out and then he began to pull the nest about and rebuild it: they never got any further. In 1896 I turned them into my outdoor aviary, but there they never even built, and towards autumn one of them died, possibly it did not have enough fruit, of which these birds are very fond and which is certainly good for all the Cardinals.

In his work entitled *Die Fremdländischen Stubenvögel*, Dr. Russ gives a combined account of the whole of the species of *Paroaria* under the title of "Grey Cardinals" and informs us that travellers have given very little exact information as to their wild habits. The pernicious custom of giving raw meat to these Buntings probably took its rise from the following accounts quoted by Russ:—"In his *Encyclopédie d' Histoire naturelle* (Paris) Chenu relates, that Mr. Passerini, at the desire of the Princess of Florence, in the years 1837 to 1839, commenced breeding experiments with Grey Cardinals. The pair built its nest in the branches

* My experience is that the male builds and the female merely arranges details.—A.G.B.

of a little tree, principally of leaves and grasses, and it contained three white eggs, covered with little green spots, more dense at the blunt end. The first young ones, hatched on the 15th July, after fifteen days incubation, the old bird permitted to starve; and only when chopped meat, insects, worms and the like had been given for feeding them, did they successfully bring up their second brood in August. He observed that the young birds did not acquire the perfectly beautiful colouring of plumage before the third year."

Further on Dr. Russ quotes an interesting account of the breeding of Red-crested Cardinals in the Zoological Gardens of Frankfort-on-Maine. It appears that a flat basket-nest was selected by the old birds for a building site; it was placed in a niche in the wall with a ledge eight centimetres high in front, and various branches served as perches. Of four similar nests they selected one which stood in the southern angle of the cage, and was most sheltered from the weather. Both sexes built together. A second hen in the aviary hung about in the vicinity of the nest, but was apparently entirely ignored, and only driven away if it approached too closely. Whereas, on the 18th April, the nest was completed, but without any lining, the female laid on the 19th and 21st, and from the morning of the 23rd began to sit steadily; it was daily many times relieved by the male. On the 5th May, young ones were found in the nest, which both parents fed diligently, at first chiefly with yolk of egg, chopped meat, ants' eggs and cut up dew-worms. On the 10th May the heads of two young ones were already visible above the edge of the nest, and shouted almost incessantly for food. The first young one came fluttering out of the nest on the morning of the 17th, and clambered about without assistance on a tree, which it did not leave, but even passed the night on; whereas the second remained sitting on the edge of the nest and only flew out on the day following. The old male fed these young ones up to the 3rd June: subsequently one of them assisted its parents in feeding a young one in the second nest; and a hen Green Cardinal, which had failed in her own broods, helped to bring up two young ones in the third nest.

Illustration from specimens in the author's possession.

THE GROSBEAKS.

COCCOTHRAUSTINÆ.

THIS division of the family *Fringillidæ*, is characterised by Dr. Sharpe as having the "Nasal bones produced backwards beyond the anterior line of the orbit; mandible very powerful and deep posteriorly; angle of genys very slight." In the *Fringillinæ* and *Emberizinaæ* (Finches and Buntings) he notes that the Nasal bones are not produced beyond the anterior line of the orbit (eye socket), whilst, in the first, the angle of the chin is very slightly indicated, and, in the second, it is very acute.

In his notes on the sub-family, however, this author observes:—"A general stoutness of bill is the leading characteristic of the Grosbeaks, accompanied, as we see in the skull, by an immense development of the thickness of the posterior end of the lower jaw; but, that this character will be found to run through all the genera, which I have arranged in this sub-family, is extremely doubtful. . . I have been able to examine so few skeletons, that the present arrangement represents rather a general idea than an actual classification of the Grosbeaks, and is liable to future modifications."

As regards the genera with which it is necessary to deal in the present volume, Dr. Sharpe thinks that *Phonipara* and *Cardinalis* may prove to be Buntings: it therefore seems best to me, if even for this reason alone, not to separate them from the Buntings, by introducing the true Finches between them: not that it much matters to the reader, but because the arrangement which I have adopted for the few regularly imported genera, seems more harmonious as regards colouring, and better expresses the views of Aviculturists, in that it does not violently separate species which have, to them, been chiefly known under the designations of "Cardinal" or "Finch;" though in the case of the latter, it is so generally used, that it is impossible to avoid keeping some of the species so named, wide apart; the somewhat aberrant genera *Spermophila* and *Phonipara* being examples.*

* I have not included the Hawfinches in this work because, though a few are from time to time imported, they are not sufficiently interesting or pleasing, ever to become popular Finches with the majority of fanciers.—A.G.B.



VIRGINIAN CARDINAL. ♂ ♀.
(*Cardinalis Cardinalis*)

THE VIRGINIAN CARDINAL.

Cardinalis cardinalis, LINN.

THIS very handsome Grosbeak inhabits the Eastern United States, northwards to New Jersey and the Ohio Valley, westwards to the plains. The colouring of the upper surface, including the wing-coverts, is brownish lake red, with ashy edges to the feathers; the remaining wing-feathers somewhat dusky, with brick-red outer webs which become paler towards the tips; front of head, crest, cheeks, and under surface bright rosy scarlet; a black patch commencing in a narrow frontal band enclosing the upper mandible, expanding at the base of the beak laterally, so as partly to encircle the eye and terminating in a broad patch on the chin and throat; tail feathers below rosy brown, sometimes inclining to greyish; beak orange-vermilion; iris of eye hazel; legs dark greyish brown. Length $8\frac{5}{16}$ inches.

The hen is quite unlike the cock; above pale olive-brown, paler on the forehead; the crest, outer web of primaries, greater wing-coverts, centre portion of secondaries, tail feathers and thighs, brick-red; the secondaries and tail feathers broadly edged with pale olive brown; under surface of wing rosy red; tips of primaries and tail very pale brown; quills dark brown; cheeks, breast and sides, pale ochre brown, becoming paler towards the abdomen; a narrow frontal band, the chin and throat slate-grey: legs paler than in the male. Length $8\frac{1}{2}$ inches.

Three races of this species have been distinguished by separate names. Dr. Sharpe thus speaks of them, *Catalogue of Birds*, vol. xii, p. 161:—"The Red Cardinals offer an instance, not very common among birds, of a genus wherein the males are all nearly alike, and the specific characters depend upon the female sex. The ordinary species of America, *C. cardinalis*, is the typical form, and the others can hardly be considered worthy of more than subspecific rank, as in the males the difference consists in intensity of colour and a slight variation in size. Those from more tropical localities appear to want the grey margins to the feathers, which are always observable in *C. cardinalis*, according to American writers, though I suspect they

are entirely lost in summer, when the feathers become abraded, and it is then that an exact comparison of the males should be made. There can be no question, however, about the difference of the females." Dr. Sharpe thus distinguishes the hens:—*C. coccineus*, with the facial mask entirely black; from Eastern Mexico, Mirador to Yucatan and British Honduras. *C. igneus*, with no black mark on the face; lores and chin ashy whitish; from Lower California, probably throughout Western Mexico north of the Rio Grande to Santiago, and Tres Marias Islands.

Of *C. carneus*, the habitat of which is Western Mexico, from Acapulco to the Colima district, the female is unknown; but the male is of a rosier tint, without ashy margins to the feathers of the back, and with the feathers of the crest elongated and stiffened.

It seems necessary to me to give these characters, by which the different races of the Cardinal Grosbeak may be distinguished; because it is quite possible that they may at any time be imported, and come into the possession of amateur Ornithologists. The nearly allied Venezuelan Cardinal is less likely to be obtained, but may easily be recognized by its longer crest and the almost entire absence of the black facial mask, excepting on the chin.

The Virginian Cardinal was one of the first cage-birds ever imported from North America. The early settlers, who doubtless looked back with a longing eye to the country which they had left, tried to imagine a resemblance, in some respect, between the songs of the birds in this, the land of their exile, and those of their old home: they consequently gave to the Virginian Cardinal the very eulogistic title of "Virginian Nightingale."

Latham speaking of the song of this bird, says that its notes "are almost equal to those of the Nightingale"; but judging from the performance of the three cock birds which I have kept, I should say that no comparison could be made between the two, without offering an unpardonable insult to our little russet-coloured summer visitor. The song of this Cardinal, as a matter of fact, consists chiefly of a repetition of the Chinese word "Chow," whistled indeed, and therefore more musical than if spoken. It may thus be rendered, as I have heard it many times uttered:—"Chow, chow, chow, chow, chow; chee-ow; chow-chow-chow-chow-chow-chow," then follows a pause and the same thing over again: the first part of the song is deliberate and loud, but after the "chee-ow" it is lower, more liquid in tone, and much more rapid.* My third example of this species, purchased on May 27th, 1897, and turned

* Of course, it is possible that, when wild, this bird may sing better than when caged; but, if so, its case is exceptional.—A.G.B.

into my outdoor aviary, sings a combination of *whit* and *chow*, usually commencing "*whit-whit-whit-whit-whit, chow, chow; chow-chow-chow-chow-chow-chow*" and so on.

At the same time, compared with the performances of the Bunting Cardinals of South America, the song of *Cardinalis* is undoubtedly praiseworthy; it is clear, loud and musical, and is industriously persevered in; but I cannot agree with Alexander Wilson, who says that its notes "both in a wild and domestic state, are very various," or that "many of them resemble the high notes of a fife." The singing season is "from March to September, beginning at the first appearance of dawn, and repeating a favourite stanza, or passage, twenty or thirty times successively, sometimes with little intermission for a whole morning together, which like a good story too often repeated, becomes at length tiresome and insipid." (Can it be credited that this paragraph is from the same pen?) He adds—"In the Northern States, they are migratory; but in the lower parts of Pennsylvania, they reside during the whole year, frequenting the borders of creeks and rivulets, in sheltered hollows covered with holly, laurel, and other evergreens. They love also to reside in the vicinity of fields of Indian corn, a grain that constitutes their chief and favourite food. The seeds of apples, cherries, and many other sorts of fruits are also eaten by them; and they are accused of destroying bees."

In the months of March and April, the males have violent engagements for their favourite females. Early in May, in Pennsylvania, they begin to prepare their nest, which is very often fixed in a holly, cedar, or laurel bush."

According to other writers, the nest is often built in a low tree, cedar or yew, or in a thorny thicket, and rarely far from running water. It is constructed of twigs, strips of bark, leaves and a quantity of dry grasses, and is lined with finer grasses. The eggs are oblong-oval, white, densely overlaid with brown and pale lavender spots.

Speaking of the Yucatan race (*C. coccineus*) Mr. G. F. Gaumer says that it is "Common in all parts, quite shy, and always met in pairs. It is alike prized for its sweet song and for its bright plumage. Its food is mostly seeds. It frequents open lands, or the outskirts of towns."

Mr. Edward Bartlett, in his *Monograph of Weavers and Finches*, says, that the brilliant plumage, and song combined, make the Virginian Cardinal "one of the most conspicuous objects throughout the swamp and forest land of the Southern States. These two great qualities might have been the destruction of this much eulogized swamp-loving bird, had it not been for the vast territory which it occupies, for not

only the natives, but travellers to that country, do their utmost to procure it dead or alive. The skins were used ages ago by the natives like those of many other birds to adorn their head-dresses and garments, for they, like the inhabitants of other parts of the world, have great taste for showy colours; in this way the poor Virginian Nightingale has been a persecuted bird in its native haunts from the time of Columbus to the present day."

Now, if this species is thus persecuted in the United States, it is little wonder that all attempts to introduce it into this country, or even into Europe, have been unavailing. No bird, having the brilliant colouring of the Cardinal Grosbeak, would be safe from the destructive instincts of English gunners for a single season. The only marvel is, considering the immense quantity of Kingfishers shot or netted every year, that a single example of that lovely bird remains in Great Britain.

Cardinalis is a hardy bird, and will do well in an unheated aviary; but if smaller or weaker birds than itself are associated with it, the probability is that, sooner or later it will brain them. It will breed occasionally, if provided with a good-sized bush, a deep nest box, or even a German canary-cage, in which to build. For materials, aloefibre, straw and hay may be provided.

The best seeds for the Cardinal Grosbeak are oats, sunflower, canary, and a little hemp; boiled maize may also be given, and any small ripe fruit when in season, also any kinds of insects, their chrysalides and larvæ. When breeding, additional insect food should be supplied; but mealworms should then be given sparingly, as they are too stimulating, and if given in excess, will induce the parents to brain their nestlings and start breeding again immediately. Fresh ants' cocoons, if obtainable, are preferable to any other insect food at this time.

Dr. Russ evidently has a great admiration for the song of this species; he thus speaks of it:—

"Beautiful bird, excellent songster; several amateurs, however, do not approve of its song, especially in the room, because too loud and harsh, whilst most praise it with one consent and listen with especial pleasure to its long-drawn flute-like notes. Singing-time:—March till the autumn moult, morning to evening, sometimes at night; frequently even begins again in December. Extraordinarily beloved, imported every year in considerable numbers, and distributed by many dealers over the whole of Europe.

"Beloved in its home by both Americans and Germans, it is

protected and only caught for the cage-bird fancy. Had been bred in Holland a century and a half ago and later in England; in Germany, for the first time, by Mr. H. Leuckfeld in Nordhausen, later by many other breeders. The hen builds the nest openly in a bush, on a thickly branched horizontal bough, on a groundwork of bents and moss, strips of paper, &c., with rootlets, bast-fibres, threads, &c., carefully lined with agave-fibre. More rarely in a Hartz cage open above, or a little basket woven of birch-twigs. *The love antics* of the male consist in extraordinary dancing and singing. The hen incubates alone, usually not fed by the male, the latter however, guards the hatch. *Time of incubation* fourteen days. Young fed by both parents; leave the nest in about twenty-two days, commonly sooner. *Breeding season* five to six weeks. *Laying* four eggs, bluish, greenish, or yellowish white, with dark spots. *Nestling down* bluish. *Young plumage* duller than that of the female, without red; beak black-brown. *Change of colour*:—In the fifth week the reddish tint show up more strongly, the red characters appear, the beak changes through dull yellow and yellowish red into red; a young male first becomes fully red and his beak coral red in the third year. 'Usually peaceable, but at nesting-time malicious, especially towards its own kind; in the bird-room devours the young out of other nests, also kills old weakly birds, sometimes its own young; the latter occurs from the want of some kind of food, or the pair is not sufficiently secure and undisturbed. It is best to breed them in single pairs and separate the young as soon as a new brood commences. Unassuming, vigorous; must not be kept too warm, otherwise convulsions. Suitable for naturalizing in our country; has wintered several times in the open, at Stettin an escaped pair nested in the pine-forest.'"

Dr. W. J. Holland* sent me the following interesting account of his experience with the Cardinal Grosbeak:—

"The Cardinal is an old acquaintance of mine. In the State of North Carolina, where I spent some of the years of my boyhood, this bird was very plentiful. In South-Western Pennsylvania, while by no means uncommon, it is not nearly so abundant as in the Carolinas. It, nevertheless, possesses a wide range upon the continent, and may be found from Ontario to Florida, and from the Atlantic sea-board to the plains of Kansas and Nebraska. The nests, of which I have seen a great many, are somewhat loosely constructed of small twigs, the bark of grape-vines, and the leaves and stems

* Chancellor of Western University of Pennsylvania, U.S.A.

of various grasses. The heavier and coarser materials are well disposed on the outside, the bowl of the nest being thickly lined in most cases, with the fine stems of the Kentucky blue-grass (*Poa pratensis*). The nests are generally built quite low, about five or six feet from the ground, and are well-concealed in the tangled vines and shrubbery, where they are located. The eggs are generally three in number; sometimes there are only two, rarely four. The nests are frequently sought out by that miserable interloper, the Cow-Bunting, and I have on frequent occasions discovered that this bird, which has the habits of the European Cuckoo, has deposited an egg in the nest of a Cardinal.

"The Red-birds in the South, where I had opportunity to study their habits most closely, feed largely on the berries of the Juniper, or red cedar, and upon the clusters of the wild grape which abounds in the lowlands along the rivers. They are also very fond of seeds of various sorts, and with their powerful beaks are able even to break the hard grains of the maize, or Indian Corn. They are also highly insectivorous, and their diet consists, to a large extent, of grasshoppers, beetles, and the larvæ of Lepidoptera.

"The clear musical note of the male, combined with his brilliant plumage, have made the Cardinal a favourite cage-bird. Our mutual acquaintance, Mr. Garner, has attracted attention to himself by his researches in regard to the language of monkeys. All the higher animals possessing vocal organs, have the power of communicating with each other to some extent, and one of the most beautiful illustrations of this fact, which I have ever noticed, came under my observation in connection with the lovely bird of which I am writing.

"Some years ago I was paying a brief visit to friends residing in Atchison, Kansas, and one afternoon, took a long collecting excursion beyond the western suburbs of the place. The afternoon was hot, and after climbing a low hill, which commanded a view of a narrow valley about half a mile in length, I lay down under the shadow of a tree to rest. As I was lying there, far off, to my left, I heard the clear call of a Cardinal. Presently, to my right, I heard it answered, but the answer was so faint by reason of the distance that I could scarcely distinguish it. A moment elapsed, and the call from the left was repeated, and again answered from the right. Thus, from moment to moment, the call and its answer were heard, constantly growing louder, until at last I saw the flashing crimson of the wing of the male bird as it pitched on the top of a small tree to my right, and almost at the same moment, further down the glade, I caught sight of the darker plumaged female

alighting on the top of a tall bush, and from bush to tree-top they flew, until at last they met almost directly in front of me upon a low tree, and then flew rapidly away in company. Precisely, in the same fashion, I have called when in the woodlands, to a comrade lost for the time from my sight, and so he has answered me, and each answering the other, we have made our way toward each other, and have at last rejoined each other. The birds did exactly what two hunters under like circumstances would have done. The birds shewed good sense."

Speaking of the silence and darkness of the bird-room at night, where it is scarcely possible to believe that about two hundred living beings are breathing, Dr. Russ says: - "It makes a peculiar impression upon me, if in the middle of the darkness and quiet, suddenly a loud long-drawn sound peals out, which from time to time is repeated. We are, indeed, accustomed to hear bird songs only in the bright sunshine, or to listen to the plaint of the Nightingale at least by the silvery light of the moon. But in any case we find these sounds, which continually increase in number, and at length pass into a coherent song, throughout euphonious and pleasant. The singer is just the Red Cardinal."

The three cock birds which I have had never sang at night; I wish they had, for one can appreciate a song so much better in the darkness when all other birds are still. The first part of the song of the Indigo Bunting always seems fuller and louder when shouted in the dusk of the evening, than at other times; and, in a large aviary it may always be heard long after sundown, during the summer months. Wiener's statement that "In the aviary he will live in silence and peace" must refer to some other bird, unless his specimens were all very ill.

I cannot refrain from quoting the amusing account of a caged Cardinal, from the pen of that charming American writer—Mrs. Olive Thorne Miller:—"He is a cynic, morose and crusty. His world is hollow and his cage is his castle, which he declines to leave for an instant, although the door stands open from morning till night. Above all, he is captious on the subject of his rights, and insists on having them respected. To have a bird perch near his door is offensive in the extreme, and alighting on his cage is a crime which stirs him to fury. He despises his restless neighbours, and feels no need of exercise himself. He sits—not stands, like most birds—on his chosen perch hour after hour, leaving it only to eat; and I think that if his food were within reach of this seat he would not rise half a dozen times a day. His only recreation is music, in which he indulges freely; and his song has a curious quality of defiance in it, quite consistent with his character. His notes indicate a more gentle sentiment only in the morning, before

his cage is uncovered and his churlishness aroused by the sight of associates whom he chooses to consider foes. At that charmed hour he will favor his delighted audience of one with a sweet and tender strain, utterly unlike his performance at any other time. A pining captive is an unwelcome guest in this small bird colony, and the Cardinal could have his liberty at any moment. But that is not his desire. He evidently appreciates the comfort of a cage, is satisfied with his bill of fare, and has no inclination to forage for himself. The only thing he wishes is to be let alone. His dream of happiness, if put into words, would, I think, resemble the ideal of some of the human family—a well-appointed house, having everything to please the eye and gratify the taste within and about it, and surrounded by a wall unsurmountable and impenetrable, even to the glances of the world at large.”

The illustration of the cock bird is taken from skins of specimens formerly living in the author's collection.

THE WHITE-THROATED FINCH.

Spermophila albigularis, SPIX.

THE merits of this extremely fascinating little bird have only recently begun to be appreciated by aviarists. Herr Wiener, in Cassell's *Cage Birds*, speaks rather contemptuously of the entire genus *Spermophila*: he gives a list of seven species and devotes three paragraphs to the whole: he says—“They are distinguished by a singularly thick and arched beak, which gives them a peculiar appearance. Their plumage unpretending, and their song quite insignificant; but they are funny-looking amiable little beings, who are content to lead a perfectly harmless existence in the aviary, munching millet and canary seed. In the course of years I have kept all those named above, without discovering anything specially interesting in any one of them.” Well, I don't agree with him. The White-throated Finch is a native of Brazil, and is an extremely beautiful little bird; reminding one, in the



WHITE THROATED FINCH. ♂ ♀.

(*Spermophila albigularis*.)

BLuish FINCH. ♂.

(*Spermophila caerulea*.)

disposition of its colours, of our European House-Martin. The general hue above is slate-grey, the feathers of the mantle being mottled with dusky near their extremities; the feathers of the wings, with the exception of the lesser coverts, are blackish, with pale grey edges; the outer webs of the middle primaries are white at the base; the upper tail coverts are blackish, with broad pale grey borders, the tail feathers black, with narrow grey edges; crown of head dark slate-grey, mottled at the back with black and entirely black in front; lores black, surmounted by a narrow white line; feathers round eye and ear coverts black, the latter greyish behind; cheeks and under parts snow-white, with a broad band of black across the throat; the sides of the body slightly greyish; thighs black at the back; lower wing coverts forming a dusky patch near the edge of the wing; quills below blackish, with the base of the inner web white, edged with grey; beak yellow; legs dusky; length 4 $\frac{1}{2}$ inches. The female is brown, with black beak; under parts paler.

This bird is very hardy, active, always neat and clean in appearance, tolerably tame and a most industrious singer. The song is rather superior to that of the majority of Brazilian birds, and may be thus syllabled—" *Chee wow, chee wow, chee wow; techee, techee, techee; tswow-tswew, tswow-tswew, techee, techee.*" This is repeated over and over again incessantly, sometimes for hours together, with short pauses for refreshment: the "*tswow-tswew*" part of the song is rather beautiful, but the "*techee*" part too high in pitch, too nearly resembling stopper-screwing to be altogether pleasing.

The White-throated Finch is rarely aggressive, excepting to its cousin the Bluish Finch; which it rather enjoys swooping down upon unexpectedly, making the latter shriek out a malediction; but in 1896 I purchased a male, which during that year was perfectly harmless, yet about the beginning of April, 1897, it developed avicidal mania and murdered a male Amaduvade, a Green Amaduvade, a Chestnut-breasted Finch and four Zebra-finches; one of the latter it literally tore to pieces; it also knocked down, and would have killed a hen Goldfinch if I had not interfered. I removed it to my Weaver aviary, where for some weeks it was cowed, but eventually its mania got the better of its prudence and I found it dead, scalped by some Weaver which it had attacked. Both species feed on white millet, millet in the ear and canary seed: in the summer, when the wild grasses are seeding, a handful thrown on the floor of the aviary, provides a treat for them, but in the winter ripe grass-seed is not despised.

So far as I can discover nothing has been published respecting the

habits of this bird in a wild state; but it is probable that they do not differ greatly from those of the Bluish Finch.

Two other nearly allied species are kept as cage-birds by the Brazilians and may, from time to time be imported; viz.:—*Spermophila hypoleuca* which differs from *S. albigularis* in having no black on the crown of the head, and in the general ashy colour of the wing coverts; and *S. plumbea*, which has the chin and entire throat light ashy grey; a white spot at the base of the cheeks, and the eyelid white. Both are natives of Brazil, the range of *S. plumbea* extending into Bolivia.

Respecting *S. hypoleuca* Mr. W. A. Forbes says:—"This species of *Spermophila* is common and widely distributed, frequenting grassy or open places, and often coming into gardens. It appears to feed mainly on grass-seeds and is social in its habits." Burmeister says that *S. hypoleuca* is "abundant on the uncultivated grassy plains (*Camposgebiet*; literally, district of Campos) of the Interior of Brazil in small companies and is much kept in cages on account of its delightful voice (*stimme*). The Mineiros called the bird *Bico vermelho*." *Vermilion beak* is rather a flattering title for a bird in which the beak is "reddish grey-brown" according to Neuwied, and "fleshy red" according to Forbes.

Of *S. plumbea* Mr. Forbes says, that it is greatly esteemed by the Brazilians as a cage-bird. They call it "Patativa de Parahyba" (Those caught at that place being supposed to be particularly excellent songsters) and often pay considerable prices for good singers. The song is loud for the size of the bird and rather pretty, though monotonous."

Burmeister says much the same thing:—"It has a pleasant melodious voice and the Mineiros call it *Batetivo*."

Dr. Russ tells us that *S. albigularis* has been bred by Dr. Franken in Baden-Baden; and Harres, the Architect, in Darmstadt. He describes the song as monotonous, but euphonious; both sexes utter sparrow-like chirrups.

"Peaceable in the bird-room. Dr. Franken's pair built a very loose nest of agave-fibres. Mr. Harres' hen took possession of an incomplete, still open, Napoleon-Weaver's nest situated in a thick tangle of twigs, and thoroughly lined it with wadding. *Egg* greenish blue, brown-speckled (Dr. F.). *Young plumage* almost like that of the adult female, clearer and paler. Head, ear-coverts and back dusty mouse grey; a similarly coloured streak across the breast; throat, belly and body below white; feet grey; beak horn brown; eyes black; feathering soft and downy. The hen alone incubates. *Duration of incubation* twelve days; the young remain in the nest eleven to thirteen days after hatching."

My White-throated Finch, on one occasion, tried to make up to a hen Green Amaduvade, but she refused his attentions. I have since obtained hens of its own species; therefore have a chance of breeding it, nests have already been built of fine tough fibre.

Dr. Russ gives no additional information respecting this species in his larger work.

The illustrations are taken from the author's living specimens.

THE BLUISH FINCH.

Spermophila cærulescens, BONN ET VIEILL.

THIS little Grosbeak is not so prettily coloured as the White-throated Finch. I imported three male specimens from La Plata in 1893: unfortunately they suffered on the journey, probably owing to the fact that they were sent to England in an all-wire cage; and during their moult two of them died: the persecutions which they were subjected to by *S. albigularis*, probably did them little good in their feeble condition.

The Bluish Finch is a native of Southern Brazil, Paraguay, the Argentine Republic and Bolivia. The general colour of the adult male is "dark ashy grey with obsolete dusky centres to the dorsal feathers; lesser wing coverts like the back; median and greater coverts and bastard-wing dusky blackish, edged with ashy grey; primary-coverts and quills browner, edged with ashy; upper tail coverts a little browner than the back; tail feathers brown margined with ashy; crown of head ashy grey, rather darker than the (remainder of the) head; forehead blackish, this shade overspreading the crown almost to the occiput; eyelid white above and below; lores, feathers below the eye, and ear-coverts black, the latter washed with ashy posteriorly; cheeks and throat white, with a black patch on the chin and upper throat; rest of under surface white, with a black band across the fore neck; sides of upper breast mottled, with black centres to the feathers; sides of body and flanks washed with ashy grey, the latter mottled with dark ashy grey

bases to the feathers; thighs and under tail-coverts white; under wing-coverts and axillaries white, with a dusky patch near the edge of the wing; quills below dusky, ashy along the edge of the inner web." *R. B. Sharpe*. The beak is pale yellow, the legs flesh-tinted; iris greyish brown. Length $4\frac{1}{8}$ inches.

Dr. Sharpe describes the hen as "Different from the male. General colour above olive-brown: wing-coverts, quills, and tail-feathers dusky-brown, edged with olive-brown like the back; eyelid and feathers below the eye dull whitish; cheeks and under surface of body ochreous brown, washed with olive-yellow, the throat whiter in the centre; sides of body and flanks somewhat browner, the abdomen yellowish-white, thighs brown; under tail-coverts ochreous white; under wing-coverts and axillaries olive-yellowish, the former white at the base; quills below dusky, ashy along the inner edge." Length $4\frac{1}{2}$ inches.

Mr. E. W. White says that—"This bird, which is very quick in its movements, builds a very delicate little nest, of a deep but very round cup-shape, formed of interlaced horsehair, so open and thin as to be seen through. It is abundant in the orchard trees around Buenos Ayres, but sometimes may be seen pendent from maize stalks. It is possessed of a nice song, and breeds very late, indeed quite up to the beginning of autumn. It lays three eggs in a clutch, of a pale bluish green, mottled with small sepia blotches and spots, which, occurring more thickly in a central band, leave the ends somewhat free. Measurement: axis 18 millimetres, diameter 13 millimetres."

Personally, I am unable to speak of the song, having never heard anything but a savage scream from my birds when alarmed; but, judging from the general similarity of *S. cærulescens* to *S. albigularis*, one would not expect to find much dissimilarity in the vocal performances of the two species.* The genus to which these birds belong contains no less than thirty-six recognized forms, and nine which may, or may not, prove to be different; these birds are imported more by chance than design; being, apparently, introduced by the South American agents, in order to make up a full number in a consignment. Many of them are, at first sight, very similar; and it is probable that the White-throated Finch alone is likely to be brought to England with anything approaching regularity.

The greatest obstacle to breeding this and many other little foreign finches in captivity is, that so very few hens are ever sent home.

In Sclater and Hudson's *Argentine Ornithology* *S. cærulescens* is

* The "Reddish Finch" and the "Guttural Finch," which I have had for years, as well as the "Lined Finch," all sing much like the "White-Throated Finch."—A.G.B.

called the "Screaming Finch," and Mr. Hudson says of it—"These birds are always most abundant in plantations, preferring peach trees, but do not associate in flocks: they are exceedingly swift and active, overflowing with life and energy, their impetuous notes and motions giving one the idea that they are always in a state of violent excitement. The male has a loud startled chirp, also a song composed of eight or ten notes, delivered with such vehemence and rapidity, that they run into each other and sound more like a scream than a song. There is not a more clever architect than this species; and while many *Synallaxes** are laboriously endeavouring to show how stately a mansion of sticks a little bird can erect for itself, the Screaming Finch has successfully solved the problem of how to construct the most perfect nest for lightness, strength, and symmetry with fewest materials. It is a small, cup-shaped structure, suspended hammock-wise between two slender upright branches, and to which it is securely attached by fine hairs and webs. It is made of thin, pale-coloured, fibrous roots, ingeniously woven together—reddish or light-coloured horsehair being sometimes substituted; and so little material is used that, standing under the tree, a person can easily count the eggs through the bottom of the nest. Its apparent frailness is, however, its best protection from prying eyes of birds and mammals that prey on the eggs and young of small birds; for it is difficult to detect this slight structure, through which the sunshine and rain pass so freely. So light is the little basket-nest that it may be placed on the open hand and blown away with the breath like a straw; yet so strong that a man can suspend his weight from it without pulling it to pieces. The eggs are three in number, white and spotted with black, sometimes bluish-brown spots are mingled with the black."

Dr. Russ calls this the "Ornamented Grosbeak" in his synonymy, and "Das Schmuckpfläffchen" (Little Spruce Parson) at the head of his account. He applies the name "Bluish Finch" or "Little blue-grey Parson," to the "Grey Grosbeak" of Latham (*Spermophila grisea*). A study of the entire synonymy of the two species, would probably reveal an explanation of this confusion, for which I do not believe the great German bird-keeper is responsible.

He says that this bird is "most copiously imported; at times common in the market. Song monotonous, chirping, yet not unpleasant. Hitherto it has not been bred."

The illustration of the male is taken from the skin of one of the specimens imported by the author and from a living specimen subsequently obtained.

* The Spine-tails, a group of Insect-eating, somewhat Tit-like, birds.—A.G.B.

WEAVING FINCHES.

WE now come to a genus of small and nearly allied birds, the position of which has not been satisfactorily settled by scientific Ornithologists.

As already pointed out ; Dr. Sharpe, whilst he temporarily refers *Phonipara* to the Grosbeaks ; expresses the opinion that it may prove to be a Bunting. But is it not possible that it may be an aberrant group of the allied family of Weavers ?

One of the characteristics of the *Fringillidæ* is, that they build open cup-shaped nests : the *Ploceidæ*, on the other hand, construct domed, cave-shaped, or inverted bottle-shaped nests. The species of *Phonipara* make domed or cave-like nests, the hole being at the front and rather large.

As an amateur rather than a scientific student of Ornithology : this fact, taken in conjunction with its small size and great activity, would lead me to place the Melodious Finch and its allies close to the Waxbills : possibly it is one of those numerous transitional forms, which the student of every branch of Natural Science is constantly meeting with, and which ruin the best laid schemes for a satisfactory linear classification.*

I, therefore, place *Phonipara* at the end of the *Fringillidæ* and immediately before the *Ploceidæ* ; commencing the latter family with the Waxbills, the majority of which were formerly placed in the genus "*Estrela*" or *Estrilda* as it is now called.

It is true that the species of *Passer* form purse or bag-shaped nests ; which, superficially resemble those of the Weavers ; but the entrance to a Sparrow's nest is at the top : in fact the construction of such a nest is practically a cup-shape, with the sides produced upwards and contracted towards the ultimate opening : in the case of the European Tree-Sparrow, which builds in hollow trees, the contraction is very slight, and the opening is consequently proportionately wide.

* Of course a linear classification is hopelessly unnatural, but it is the only one which can be practically followed in Catalogue and Cabinet.—A.G.B.



MELODIOUS, or CUBA FINCH. ♂. ♀.
(*Phonipara canora*.)

THE MELODIOUS FINCH.

Phonipara canora, BONAP.

THE Melodious Finch is a native of Cuba and belongs to a genus which, according to Dr. Sharpe, contains four distinct species, and two tolerably well-marked races. The Melodious Finch is the type of the genus (that is to say the species upon which the genus was originally erected.*)

The adult cock bird above is of a yellowish green colour, the back of the neck a little brighter; the crown of the head slate-grey in front, shading off into green at the back; the base of the forehead, lores, feathers round the eye, ear-coverts and cheeks black; a golden yellow eyebrow; the primary coverts and flight feathers dusky, the primaries yellow externally, the remainder yellowish green; tail feathers dusky, olivaceous yellow externally; throat black; sides of neck and a collar across the lower part of the throat golden yellow; under parts slate-grey, paler on the breast and whitish on the abdomen; under tail-coverts yellowish white with the base of the feathers pale grey; under wing coverts yellowish white, the edge of the wing olivaceous yellow; quills below dusky with greyish white inner margins. Length $3\frac{4}{10}$ inches.

The hen differs from the cock, in the absence of black colouring from the face, throat and breast; on the face and throat it is replaced by chestnut brown; the crown of the head greyish brown; no yellow collar across the throat.

The nearly allied Olive Finch (*P. lepida*), which inhabits the Greater Antilles, is thus distinguished by Dr. Sharpe. "A yellow eyebrow as well as a loreal spot and the chin; lower throat black. Black on the throat restricted to the fore neck, and never extending on the face as far as the region below the eye. It seems necessary to quote these distinctions, because both birds occur in Cuba and are occasionally imported, though the Melodious Finch is best known.

* When the describer of a new genus includes in it several distinct species and does not state which is the type, it is customary to follow the first subsequent author who does indicate it. Therefore, if a genus is subsequently sub-divided, the typical species must still be left in that sub-division which retains the original generic name.—A.G.B.

Phonipara canora has been called Cuban Finch and Brown-cheeked Grosbeak. These names are rather vague; and, therefore, the somewhat flattering designation of "Melodious Finch" is preferable. Very little seems to have been published respecting the wild habits of *P. canora*; but respecting the allied *P. bicolor** and its variety *P. marchii*, which differ principally in having no yellow on the throat, the following facts have been made known:—

Messrs. A. & E. Newton say that it has a Bunting-like song, which is always heard very early in the morning. It is said to frequent the curing-houses, hopping on the uncovered sugar-hogsheads, and making a plentiful meal therefrom. It is very sociable and feeds in small flocks, mostly on the ground among the guinea-grass. The crops of those dissected were usually found to contain small seeds. They build domed nests in the low bushes, thickets of bamboo, or among creepers against the side of the house, seldom more than four feet from the ground, composed entirely of dry grass, the interior being lined with finer materials of the same. The opening is on one side, and is large for the size of the nest. They breed from the middle of May to the end of July. The eggs are white, spotted with red, especially at the larger end: usually three, very rarely four in number.

Mr. March speaks of it as the most common of the Grass Finches in Jamaica, and as nesting, at all seasons of the year, in low trees and bushes. Near homesteads, building its domed nest, it makes use of shreds, scraps of cloth, bits of cotton and other trash. He also states that the eggs are spotted rather with brown than red, vary greatly in size and are from three to six in number.

Mr. Hill again observes that this Finch very frequently selects a shrub on which the wasps have built; fixing the entrance close to the cells of these insects: and Mr. Gosse seems not to believe in its song, for he states that the only note of this species is a single harsh guttural squeak, difficult either to imitate or describe. He evidently did not get up early enough to hear the song.

Dr. Russ calls this "The Little Cuba-Finch," and observes:—"It ranks high among the most graceful and beautiful inhabitants of the bird-room; in consequence of the remarkable ease with which it can be bred, long the darling of all amateurs and breeders." "It is reckoned among the rarer, at the same time more costly, whilst much

* *Phonipara bicolor* is known as the "Bahama Sparrow." Any bird which approaches houses and builds its nest of rubbish, has a chance of being called a Sparrow.—A.G.B.

sought for cage-birds; notwithstanding its having been frequently bred and its rapid sale * * ; it is imported by all large dealers, though only in single or few pairs. It has no song, in spite of being called *Chanteur de Cuba*; even in the season of love only a soft piping and whispering. Disposition showing great likeness to that of the Astrilds. Not spiteful, but in the immediate vicinity of the nest very snappish towards larger birds. *Nest* in a thick tangle, a purse with a long entrance tube running obliquely to below it, only rarely an open cup, of agave and cocoa-fibre, strips of bast, wool and hair artistically felted together; completed in six to eight days. *Laying* four eggs, bluish or greenish white, with fine dark speckling. *Nestling* down whitish grey. *Wax-glands* yellowish white. *Young Plumage* brownish-olive green; collar pale yellow, in the male already distinct; face and breast blackish brown; underside dusty grey; little beak dusty brown. Up to the first moult in dull plumage, then the blackish mark shows itself, continually getting darker, moreover, the colouring of the breast, and simultaneously the previously narrow yellow stripe, becomes gradually broader. The production of a brood takes four weeks. Each pair yearly produces from three to as much as seven broods. The young must be removed as soon as the old birds begin to nest again. I first reared the Cuba Finch, and equally in cage and bird-room with good results. Enduring, it can be kept perfectly well through the winter in an unheated place."

The entrance tube to the nest which Dr. Russ describes is a frequent characteristic of the nests of Waxbills.

Dr. C. S. Simpson sent me the following note respecting his pair of this pretty little Finch:—"The Cuba Finch is, to my mind, the most attractive of all the small Finches. My pair have had a somewhat uneventful life so far: they are never dull or ailing, and do not seem at all susceptible to cold. They hardly deserve the name of 'Melodious Finch' I think: the cock has a rather pretty note, but it hardly amounts to a song. They are extremely lively birds, always on the move, and require a large cage: their greatest charm to me is their cheery bright disposition. The harmonious combination of golden yellow, black and olive-green, pleases me far more than the more vivid contrasts of the Gouldian and Parrot Finches. They are very fond of bathing, and invariably keep themselves in the most faultless condition: the cock and hen display the greatest affection towards one another. They live principally on spray millet and canary seed, with a little white millet. I used to give them small mealworms occasionally, but I am sure they are better without them.

Unfortunately, I have no facilities at present, for keeping birds loose in rooms or out-door aviaries, and there are but few birds which will breed in cages.”*

In Russ’ *Fremdländischen Stubenvögel*, I was pleased to find the following statement confirmatory of my view of the affinities of this species:—“In its entire conduct it has, as already mentioned in the introduction, an exceedingly close resemblance to the Astrilds: the building of the overarched nest, as well as the fact that the first pair in my bird-room laid pure white eggs, had already led me to the conclusion that it is an intermediate link, probably a representative of the Ornamental Finches in America. Closer observation, however, revealed the mistaken character of this view, especially as it has been seen in the foregoing descriptions, that a considerable number of other allied Finches, especially in their first broods, also lay white eggs, as in general the eggs of all these birds are extraordinarily unlike in the bird-room and in freedom.”

I quite concur with Dr. Russ in the opinion that the absence of marking, and even colour, from the first clutch of eggs is of no importance as proving its affinity to the Waxbills; but another fact, which he mentions later—that both male and female sit together on the eggs, certainly favours the view that this species is allied to the Ornamental Finches. The first eggs laid by Linnets and other European Finches, when wild, are often unspotted and paler than those produced later; indeed, I have found eggs both of Linnets, Greenfinches, and Bullfinches nearly white, and an entire clutch of eggs of the Yellow-Hammer pure white and unspotted: but it would be a very strange thing to discover both sexes of a truly Fringilline bird associated in the act of incubation; whereas, this is of common occurrence among the small Ploceine Finches.

Illustrations from skins in the Natural History Museum and from sketches made at the Crystal Palace Bird-show.

* Since sending me the above, Dr. Simpson has considerably increased his accommodation—A.G.B.

THE WEAVERS.

PLOCEIDÆ.

WE now come to the most popular Finch-like Birds, the so-called "Ornamental Finches" of the fancier. Birds of which probably thousands are imported, for every true Finch that is sent home; and which, at our shows of foreign birds, almost monopolize the Finch Classes, with the exception of those devoted to Cardinals.

The family *Ploceidæ* is divided into two sub-families, the *Viduinæ* or Whydah-like birds, which contains the whole of the Waxbills, Grassfinches, Mannikins, and true Whydahs; and the *Ploceinæ* or Weaver-like birds, including the more typical Weavers.

The term "Ornamental Finch" is applicable to the Waxbills, Grassfinches and Mannikins, and answers to the German word "Prachtfink."

WHYDAH-LIKE WEAVERS.

SUB-FAMILY *Viduinæ*.

DR. SHARPE points out that, in this group, the first primary is very small and falcate; attenuated towards the end, never reaching beyond the primary coverts, and generally falling conspicuously short of the latter.

The domed nests of these birds are usually very cleverly constructed, and the pleasure of sitting down and watching a pair of

Waxbills or Grassfinches constructing their future residence, is considerable; so methodically, and yet rapidly, do the little architects build up a firm and compact looking structure out of hay, flowering grasses, and aloe fibre or rootlets, that one never tires of looking on and marvelling at their skill.

In the majority of the genera of these birds, the eggs deposited are pure white, and entirely destitute of marking; so that for purposes of classification they are practically useless; their differences are principally those of form or size, both of which are liable to variation, due to the health or age of the parents.

ASTRILDS OR WAXBILLS.

THIS section, though based upon the general form, colouring, action, and song of the tiny birds so-called, is one not admitted in purely scientific works; but is essentially a fancier's division, and therefore a necessary one for the present Work.

Generally speaking, the Waxbills fly in communities, often amounting to large flocks, when not breeding; but, as the nesting season arrives they separate into pairs or little bands of two or three pairs. Their nests are frequently flask-shaped, and, with a covered passage leading into the entrance, which is placed either in front, or at the side, and often directed obliquely downwards; the outside material of the nest usually consists chiefly of dry grass, but the interior is often warmly lined with feathers, wool and other soft materials.

In their actions the Waxbills are particularly sprightly, and they have a way of jerking their tails from side to side, which gives them an alert appearance even when feeding: their cries are sharp and shrill, and several of them sing very prettily.

In their wild state Waxbills feed on seeds of various grasses and other small wild plants. It is, therefore, not surprising that, in the aviary, they are more eager for grass-seed than for anything else; indeed nothing can give them greater pleasure, or produce more



GREEN AMADUVADE WAXBILL. ♂♀.
(*Stictospiza formosa*)

bickering and petty disputes, than a large handful of various grasses in seed, unripe for preference.

In captivity Waxbills should have canary-seed, white millet, millet in the ear, and lawn-grass seed. In the summer they should always have fresh turf to peck over, small spiders, or small insects when obtainable, green caterpillars or living ant-cocoons (wrongly called "ants' eggs,") when breeding.

If possible, the African species, which are thinly clothed, should be wintered at a temperature of sixty degrees Fahr.; but, where that amount of warmth cannot be maintained, several should be kept together in a cage open only in front and having a warmly lined nest-box, or basket-nest at the back; they will then be able to pass the winter without harm, even should the thermometer register a temperature of between forty and fifty degrees: indeed, a tolerably sharp frost, once in a way, will not necessarily kill them; although this should be carefully avoided.

I do not, however, doubt, for a moment, that by carefully selecting strong pairs, and breeding from them in a moderate temperature, it would be possible to acclimatize the most delicate Waxbills. Indeed, it has recently been proved that, in the clear pure air of the country, they can be wintered in large garden aviaries where they can have plenty of exercise and thick natural cover in which to roost at night.

THE GREEN AMADUVADE.

Stictospiza formosa, LATH.

[ATHAM calls this the "Lovely Finch," but Jerdon speaks of it as the "Green Waxbill": the first name is applicable, but too vague; the second is far more appropriate, but must, I fear, give way to the better known dealers' name. The Green Amaduvade inhabits Central India.

The male bird above is olive green; the flight feathers, excepting

the inner secondaries, dark brown; upper tail-coverts yellower green; tail feathers black; cheeks, throat and under surface of body bright yellow, gradually becoming deeper in tint on the abdomen and under tail-coverts; sides of body regularly barred with white on a black ground; under wing-coverts creamy whitish; edge of wings yellow; flight feathers below greyish. Length $4\frac{4}{10}$ inches. Beak deep waxy red, legs greyish flesh-coloured, iris pale brown.

The hen is duller than the cock, the upper parts greyer, the under parts much whiter; the sides would be better described as barred with smoky olive on a white ground (than white on black), the white bars being wider than the blackish olivaceous ones. Length 4 inches.

Two pairs of this very beautiful little Waxbill were given to me by the Hon. Walter de Rothschild, in about the year 1890. In December, 1891, one of the hens built a nest in a box (of the cigar-box pattern) in the Waxbill aviary, laid four eggs and began to sit steadily: a Parson-finch, however, took it into his head to help her to incubate them, and so frequently turned her out of the nest that, after a day or two, she deserted it. During the spring of 1892 three of these Waxbills died, leaving me with only one cock bird; but during the following winter I purchased half a dozen from a friend at a very moderate rate. I ascribed the death of the three mentioned above, entirely to the fact that I had discontinued to use sea-sand for a time, on the score of economy: very false economy! I purchased three pairs in 1896, making my total number of this species up to eleven—nine in my bird-room and two in my covered outer aviary. The latter (a pair) did not at first consort together, but with a pair of Lavender Finches; however, after the death of one of the latter, the Green Amaduvades made friends and soon pecked one another's necks bare—a common trick of this species; at the present time I have eight still living, though two have been nearly dead and are now kept together in a flight-cage.

Compared with other Waxbills, I should regard the Green Amaduvade as decidedly hardy; it never seems to have anything the matter with it; even those of mine which died in the third year of their aviary life, showed no previous signs of illness, as some of these little birds do (moping about in corners for weeks together); they simply dropped out of existence, apparently without cause.

Mr. Abrahams, however, informed me that according to his experience, the Green Amaduvade was a delicate bird, and he did not think it would live long in an unheated aviary. It is one of the few Waxbills commonly imported, with which I have not tried the ex-

periment of turning it out; though my experience with the commoner Indian Amaduvade greatly tempted me to risk it.*

Jerdon says of this Green Waxbill—"I have seen it in the jungles north of Nagpore, on the high land near Seonee, on the Pachmarri range of hills, rather abundant, and on the Vindhian range of hills near Mhow. It has also been found at Omerkantak, near the source of the Nerbudda, and in other parts of Central India; and I am told that it occurs in Oudh, and other parts of Northern India, in the Pindooa Dhoon according to Col. Tytler. It is occasionally caught and caged at Kamptee, Saugor, and Mhow. It associates in tolerably large flocks, with a low chirping note, and keeps much to the woods."

The chirping note referred to by Jerdon, is probably its call-note, a high "*tsip-tsip*"; I have not heard the cock bird sing; or, if so, the song cannot have been sufficiently remarkable to arrest my attention.

Singularly enough, Oates calls this the "Green Munia," though in what its resemblance to a Mannikin consists it would be hard to say: he writes as follows: "In the Raipoor district it breeds, I believe, from October to the middle of January, and probably again in the early part of the rains, in sugar-cane fields, or perhaps amongst the dense jungle-grass that fringes, in most localities, the banks of streams and rivers." He then quotes the following interesting notes from the pen of Mr. F. R. Blewitt:—

"For years I have tried to secure the eggs of *S. formosa*, but without success. When at Saugor, in the month of May, in a sugar-cane field, a favourite resort of this Waxbill, my men discovered two nests—one complete, and the other all but finished—built on, and firmly attached to, the stalk end of two or three of the upper leaves. They were somewhat oblong in shape, and very neatly and compactly made. The interior lining was of fine grass, the exterior of coarse grass and long strips of only sugar-cane leaves, well interwoven with the coarse grass. The men told me that the birds had deserted the nests, but, on inspection, I had reason to discredit their statement.

"Two years ago, in January, my men shot, on the banks of a stream here in high grass, a young bird that had just left the nest. Every search was made all along the bank of the nuddee for nests, but unsuccessfully. It would thus appear that *S. formosa* breeds twice a year."

Later, however, Mr. Blewitt did succeed in getting eggs. He says:—

* Since writing the above, I have put the hardiness of this Waxbill to the test, and find it absolutely indifferent to cold: in the winter of 1894-5, the thermometer registered no less than 21 degrees of frost, without affecting this or the commoner Indian species of Amaduvade. A.G.B.

"On the 17th July, we were encamped in the open forest country, in the immediate vicinity of the western flanks of the hill-ranges of the extreme eastern section of the Bhundara District.

"In a sugar-cane field of about two acres in extent, on the bank of a broad hill-torrent, I found four unfinished and three complete nests, each containing five eggs, of *S. formosa*.

"The nests, one and all, were some five feet from the ground, in the upper portion of the sugar-cane, the stalk forming a side support opposite the entrance. The framework of the nest is first strongly and neatly secured by lacings of coarse grass between two of the cane-leaves, one above and the other below; but as the building proceeds, three if not four, additional leaves are caught on to the sides of the nest and firmly interlaced in the exterior material. The inner portion or lining is completed last. When finished, the nests are large globular structures, made exteriorly of coarse grass and strips of the cane-leaf itself, the inner cavity being thickly lined with very fine grass, all somewhat compactly put together.

"The entrance-hole, which is prolonged into a short neck, is invariably in the centre, opposite the sides supported by the cane-stalk, and is well concealed by projecting grass-fibres.

"Five is apparently the normal number of the eggs, and both sexes are equally employed in building the nest, and incubating the eggs. One male was shot busily at work at the short neck of the nest, the female the while sitting on the eggs. Evidently a new nest is prepared each successive season, and I think they always breed in society, several nests being found in close proximity.

"The eggs, as might be expected, are snow-white and entirely devoid of gloss. In shape they are somewhat elongated ovals, some few of them slightly compressed towards one end."

The eggs laid by my own birds were not specially elongated: in fact they might have passed for those of any other of the smaller Weaving Finches: it is probable, therefore, that they vary in shape according to the health of the bird, like those of most other species.

"First imported into Germany (according to Dr. Russ) in the late summer of 1873, up to nearly the end of 1874, through Hagenbeck's store, this pleasingly coloured Ornamental Finch had gained a holding in all bird-rooms. From 1875, quite up to the end of 1881, it was entirely missing from the bird-market; since then it has always, spasmodically, yet in considerable numbers, been again imported. In aspect, size and disposition it resembles the Tiger-Astrild (Common Amaduvade) yet, unlike it, is more calm and quiet."

"Hartlaub saw it alive in London, even at the beginning of 1860; Carl Hagenbeck is of opinion that it had not been imported into Germany earlier. A little crowd of them lived peaceably together in my bird-room: usually sat deep in a bush in a half dark corner, or hopped about in company upon the earth seeking for food. Even in the breeding season they were not especially agitated. The courting like that of the Tiger-Finch; the male also seeks, with similarly resounding chirping cry, to drive away every other bird from the vicinity of the brood. One of Dr. A. Frenzel's males proved an industrious singer, excitedly trilled a bar, which it regularly terminated with some low-pitched, barely audible sounds. *Nest* inartistic, of bast-strips and other soft materials, like a tower, three hands high and standing obliquely, with the entrance leading downwards from above; sometimes spherical, or elongated-spherical, with side exit. Its nesting with me has not had very satisfactory results. A brood succeeded so far with Mr. Bargheer in Basle, that a young one lived until six days old. Soon after that the hen died. Miss Olga Ponfick secured the first entirely satisfactory hatch. In the early part of the year 1884, two youngsters were fledged, and completely brought up by her in a flight-cage. The pair subsequently had several other broods, and from one of the nestlings kindly forwarded to me, I give the first description of the young plumage:—Upperside dark olive-greenish-brown; the croup lively brownish-olive-green; tail black; under wing-coverts isabella-white; flights ash-grey below; sides of head and throat bright brownish-isabelline-grey. Breast slightly darker; rest of under surface grey-yellowish-isabelline; on the flanks at both sides two feathers delicately banded clear and dark; beak shiny black; eyes black; feet whitish-horn-grey. Size that of the adult bird."

No additional information is given in Dr. Russ' larger work.

The illustrations are from the author's living specimens and skins.

THE ORANGE-CHEEKED WAXBILL.

Sporæginthus melpodus, VIEILL.

THIS Waxbill is a native of West Africa, its range extending from Senegambia to Angola. It is one of the most frequently imported species, is very cheap and unfortunately, like most of the African Astrilds, is nervous and delicate.

The general colour of the adult male above is copper brown, the wing-coverts similar, but the flight feathers slaty, excepting along the edge of the outer webs; upper tail-coverts bright crimson; tail-feathers dull black, the outer feathers greyish near the extremity of the outer web; crown of head and back of cheeks slaty-grey; entire centre of face occupied by a large orange patch; feathers at base of upper mandible crimson; eyelid white; sides of neck and under surface pearl grey, slightly brownish and with a few orange-fringed feathers on the abdomen, which is also somewhat lighter in the centre; flight feathers below scarcely paler than above; length $3\frac{1}{10}$ inches. Beak crimson; legs horn-brown; iris pale brown. The female is paler in all the bright patches.

S. melpodus is one of the smallest of the African Waxbills, and is a great ornament to an aviary; but unless a winter temperature of quite 60 degrees Fahr. can be ensured, it never lives long in such an enclosure; at any rate, that has been my constant experience for many years.

Now, it is a singular fact, with regard to these delicate little Finches, that some of those which die very quickly in a moderately warm indoor aviary, will survive for a considerably longer period in an airy and quite cold one. No doubt the fresh air invigorates them, and the additional exercise which they take, tends to keep up the circulation. I find, for instance, that the present species, the Cordon Bleu and the Lavender Finch will live and thrive in an out-door aviary at a very low temperature, but are speedily killed by fog. However, for those who cannot command a high temperature and who yet wish their African Waxbills to live indoors for more than eight or nine months, there is only one plan to be adopted:—



ORANGE-CHEEKED WAXBILL. ♂. ♀.

(*Sporæginthus melpodus*)

ZEBRA WAXBILL. ♂.

(*Sporæginthus subflavus*)

In one upper corner of a spacious breeding-cage, open only in front, hang up a box half filled with hay and turn your African Waxbills into this; on warm nights you will see these little Finches crowded together on the top of the box, but in cold weather they will crouch down inside upon the hay, and so keep comfortably warm: you will find that, by adopting this plan, you can keep all the more delicate Waxbills in health throughout the winter, and at a moderate temperature.

Of course, in an ordinary dwelling-room, a good temperature can usually be ensured; but few careful housewives like to have large cages full of birds in their rooms, because, even with the greatest precautions, it is next to impossible to prevent Finches from flinging seed and husks upon the carpet; and it is quite impossible, when this happens, to prevent an invasion of mice from the outside world. Personally, I should not object to having Finches in every room of my house, even though it should involve perpetual warfare against mice: but it must be admitted, that it is better for pets of all kinds to be kept to their own rightful domains.

Dr. Russ thus speaks of this Waxbill:—"Always smooth and clean in plumage, sprightly and active, exceedingly docile and peaceable, singularly shy and nervous; so that whenever anything unusual appears its shrill cry of warning is uttered; although saucy, and in particular very inquisitive."

"In my bird-room, three pairs of Orange-cheeks went to nest and built sociably, either like the Grey Astrilds in the little basket nest of a high hanging open structure, or freely in a thick bush, with thin flexible fibrous materials, as well as fresh asparagus sprays, an ornamental spherical nest, with a quite narrow circular entrance hole, without tubular inlet. *Laying*—three to seven round white eggs. Both sexes always sit simultaneously, keep always close together most affectionately, never separate, whisk together out of the nest at every scare, on which account the brood comes to grief nearly every time. *Nestling-down* yellowish grey, with the swollen rims of the beak pure white. *Young plumage*—above clear ash-grey, below brighter, with a brownish ground-tint; tail and wing-feathers darker, undecided reddish grey; croup suffused with reddish yellow; cheeks already delicate clear yellow; beak and feet black. *The change of colour* commences in the third week, by the more defined development of the coloured characters; in the fifth week even the little beak has become red.

"After this Astrild had first nested in my bird-room, it also did so in several others; nevertheless, its production is one of the most

difficult of all. Not delicate, it so far resembles the Grey Astrild. Hitherto hybrids have been bred between the Orange-cheeked and Grey Astrild and the little Helena-pheasant (St. Helena Waxbill).

“*Song*—chirping, not remarkable; *Courtship*—expanding the tail elegantly, and moving it almost rythmically from side to side, the head comically stretched upwards, with jerky movements, dancing round and pursuing the female with loud chirruping, presents a most fascinating picture. Is one of the most abundant Astrilds.”

In his *Fremdländischen Stubenvögel*, Dr. Russ says:—“If towards twilight the community of the bird-room, and especially the Ornamental Finches, exhibit unusual agility so that they either assiduously crowd round the feeding-place for the last time, or are already wrangling for the most comfortable resting-places, the Orange-cheeked Astrild, called by the dealers Little Orange-cheek, appears to be one of the most lively. The whole assembly is innocently engaged with its various occupations, when the observer makes an unintentionally hasty movement, and immediately with shrill *tsit, tsit!* the male Orange-cheek scares all its associates into flight. It is in fact the sentinel among these birds. In due form, with argus eyes, it seems to watch over the safety of the entire community; if the window of a passing cab throws a light on the ceiling of the bird-room, if a paper kite or a flock of pigeons rises into the air, but particularly in the case of any unusual appearance close at hand,—as for instance if a lady visitor has brought her muff with her—the warning-cry of the little Orange-cheek always terrifies this whole feathered world out of its tranquility, and frequently disturbs their rest for hours.”

Everyone who has kept the Orange-cheeked Waxbill in a large aviary must have noticed this highly nervous peculiarity, indeed, it is such a nuisance that, in my opinion, the Orange-cheek is better kept in a cage, where he cannot disturb the peace, and upset the nerves of a whole room full of birds. Even, without *S. melpodus* screaming “caution,” all Waxbills are sufficiently timid, and often simultaneously get a scare and fly up in a crowd for no apparent reason; when one is quietly sitting in a corner watching them.

I have not been able to discover any account of the habits of this very common African species in a wild state. One would have supposed that one, at least, of the many naturalists and explorers who have visited West Africa, would have taken the trouble to record a few facts respecting the birds which swarmed around them: indeed they have done so in the case of many, far less deserving of their attention than *S. melpodus*.

Of course there is every probability that it is a reed-frequenting species like its congeners, that it breeds after the rains, building a large domed nest with covered entrance tube; that it usually occurs in flocks, excepting when breeding, and that it seeks its food on the ground. These may almost be regarded as certainties, but before they can be added to the life-history of the bird, they must have been recorded by some eye-witness.

The illustrations are from skins in the author's collection.

THE ZEBRA WAXBILL.

Sporæginthus subflavus, VIEILL.

THE Zebra Waxbill is locally distributed throughout the whole of the Ethiopian region, where it is generally met with in flocks. Common though it is, comparatively little seems to have been published respecting its habits in a wild state.

The general colour of the male above is olive-brown; the lower back and upper tail-coverts crimson; the tail feathers smoky, with browner edges; the central ones entirely brown, the outer ones fringed with white at the ends; lores and a broad eyebrow, which partly encloses the eye, crimson; chin bright red; feathers below eye, sides of face, and throat bright yellow, shading into bright reddish orange on the breast and then gradually passing into orange yellow again on the abdomen and under tail-coverts; sides of body greenish grey, barred with buff; under wing-coverts greenish grey, edged with whitish; flight feathers smoky with greyish edges. Length $3\frac{5}{8}$ inches. Beak crimson, the ridge and cutting edge of upper mandible blackish; legs flesh-coloured; iris crimson.

The hen chiefly differs from the cock in the absence of the crimson eyebrow, the greyer cheeks and the paler yellow and orange of the under surface, excepting on the under tail-coverts, which are as bright as in the male. Length $3\frac{1}{2}$ inches.

Much the same may be said of this as of its predecessors; it is,

perhaps, a little less delicate, but I have never known it to live very long in any of my aviaries; though in a cage with other Waxbills, and with a box to which it can retire at pleasure, it does not seem to mind a temperature of 50 degrees, or even somewhat lower.*

Dr. Russ, who probably is able to secure a higher temperature than I have at command, does not appear to have much difficulty in keeping this, or the other African Waxbills in vigorous health. He says of this species:—"Once again one of the most abundant, most beautiful, and most beloved of the Astrilds. It hardly ever comes into the market out of feather; and after their arrival fewer individuals die than in the case of several other species; with proper attention it keeps in good health in the dealers' cages for years, only it usually becomes black.

"It wonderfully soon takes steps to breed, whether flying at large in a bird-room, or in a small cage. The power of production of this species is astounding; the first pair in my bird-room bred seven times in vain, and only the eighth time, when small fresh ants' eggs had been obtained, was a brood of five young ones satisfactorily reared. A pair belonging to Dr. Rey, of Halle, produced fifty-four young in the course of one year, which, however, all died; besides this sixty-seven eggs were taken away. *The love-dance* is comical; *the song* scarcely more than a Sparrow-like, yet not inharmonious chirp, repeated an innumerable quantity of times in the early morning during the nesting season. *Nest* in a little Hartz cage, with basket nest, or in a little lined nest-basket, or a very small Frühauf's nest-box,† open in front, always high up: somewhat negligent, as compared with those of the nearly allied Astrilds; of strips of paper and bast, cotton threads, fibres and hay-stalks loosely thrown together, arched over, with a lateral, broad, and scarcely rounded entrance; inside, on the contrary, rather carefully lined with horse-hair, wadding, and soft feathers. *Laying* three to four, even sometimes seven to nine eggs, which are incubated alternately by the male and female for two hours at a time. *Nestling-down* whitish yellow. Expansions of the beak yellowish white.

* During one night of the winter of 1894-5, the temperature fell to 34 degrees without affecting it.—A.G.B.

† Characterized by Dr. Russ as a "Frühaufchen Nistkasten." I at first imagined that this might be a cigar-box to contain "Early weeds," somewhat after the style of the "Zwischen-Act Cigarren" sold in Germany. Several Germans whom I asked were quite unable to give me a better explanation; but one gentleman wrote to his friends in Germany, who told him it was a cage in which to take out an Eagle-Owl to the chase: this gave me a false clue, although I never heard of that bird being used for hawking. Finally, Dr. Jordan, of the Tring Museum, sent me a cutting from a German newspaper, advertising "Frühauf's Nest-boxes, always recommended by Mr. Carl Russ, in his Works." Sold by Carl Frühauf, of Schleusingen, Thuringia—A.G.B.

Young plumage bright yellowish grey, to be distinguished by the weak, but clearly perceptible reddish yellow colouring of the croup; little beak shining black; eyes dark brown; feet black brown. *The change of colour* begins after three weeks; in five weeks the feathering below is clear yellowish, upper surface darker brown; after eight weeks the yellow becomes deep and shining, the little beak red, and the superciliary stripe, which began to appear about the sixth week, is perfected. Then the bird is fit to propagate its kind. The lively orange red of the male is first shown in the second year; by the fifth year it has sometimes extended itself uniformly over the throat, breast, and front of abdomen; males so coloured are, however, rare.

"One should not allow oneself to be deterred from buying on account of the black colouring, provided the birds are otherwise healthy and strong." "In the aviary, mild and peaceable. During the nesting-time, and especially at its commencement, they dispute together, and indeed, with others; but they can never do any mischief. In a cage they are uncommonly charming; in it they never let one hear the Sparrow's song. Breeding up to the time when the young are completely fledged, is difficult to compass, because the young almost always die; they have, however, already been frequently reared with satisfactory results, first in my bird-room and then in others."

Mr. Ayres writes of *S. subflavus* as follows:—"I found a flight of these tiny Finches feeding in some cultivated grounds near Maritzburg in July: they were the first I have seen of this species."

Messrs. Butler, Feilden and Reid observe:—"We met with a small flock near Newcastle, in September, very shy indeed, and obtained several specimens, both male and female."

"We were somewhat surprised at meeting with a large flock also, frequenting a reed-grown stream at Richmond Road, near Pietermaritzburg, in December. They stuck pertinaciously to the thick coverts, perching, however, on the reeds and not on the ground."

The above meagre notes are all that I have found respecting the habits of this abundant species in a wild state.

Dr. Russ says:—"This Ornamental Finch, generally known under the name of Little Gold-breast is one of the smallest, but also most beautiful, and moreover, most beloved of all * * * and indeed this little bird deserves well to be a pet of all the world." I quite agree with him, though it sometimes gives trouble by escaping out of its cage through marvellously small chinks.

The illustration from living specimens and skins in the author's possession.

THE AMADUVADE WAXBILL.

Sporoginthus amandava, LINN.

THE common Amaduvade or "Avadavat" as it is frequently called, is a native of India, Cochin China, Siam, Java and other Malayan Islands. It is imported in such quantities that occasionally some of the smaller dealers find it necessary to part with their stock at a few shillings per dozen, in order to save the expense of their keep; this is, however, an extreme case.

Col. Swinhoe informs me that in Bombay, the native Bird-catchers will sell them at the rate of about one halfpenny apiece, when freshly taken; they are, however, usually put up with Spice-Finches in native wicker cages containing perhaps three dozen birds, and are then sold in the bazaars at fully double the price. I received one of these cages in 1892 from Bombay, but when it reached me only half the birds (*i.e.* ten Spice-Finches and eight Amaduvades) were living, and two of the Waxbills died subsequently, but some of the remainder, which I turned loose in an unheated aviary, are still in perfect health.

The cock Amaduvade, in breeding plumage, is an extremely beautiful little bird with a charming, though somewhat brief song, reminding one of a bugle-call. Above, the general tone is copper brown; the feathers of the lower back and tail-coverts copper red; marked near the tip with a round white spot; tail feathers, primary coverts, and flights, brownish black; the outer tail feathers and inner secondaries with white terminal spots; the sides of the face and throat shining copper-red, the breast somewhat darker and spotted with white; abdomen and under tail-coverts white; wing-coverts below white, flights smoky, with greyish inner web. Length $4\frac{3}{5}$ inches. Beak crimson; legs flesh-coloured; iris orange-red.

The female above is brown, with darker wings; small white spots on the wing-coverts and inner secondaries; the lower back and upper tail-coverts darker copper red than in the male; edged and spotted with white; the lores, eyelid and feathers behind the eye black; a whitish streak below the eye; sides of face greyish; throat pale buff, becoming browner on the breast; lower breast and abdomen orange



COMMON AMADUVADE. ♂. ♀.

(*Sporæginthus amandava*)

AFRICAN FIRE FINCH. ♂.

(*Lagonosticta minima*.)

ochreous; sides of body and thighs greyish brown; under wing-coverts yellowish white. Length $4\frac{1}{8}$ inches.

This species changes its plumage entirely, from time to time, in the most unaccountable manner; not merely to the duller winter plumage:—The whole of my six Bombay cock birds, at their second moult, assumed a plumage like that of brilliantly coloured hen birds, and answering very closely to the description of Wallace's *S. flavidiventris*: this dress they retained for an entire year without change, and then the copper colouring began to re-appear in patches.

In like manner the hens vary considerably, some examples being almost as bright in the under-surface colouring as Zebra Waxbills; whereas, others are of a pale sandy buff colour, slightly smoky on the breast. Some old cock birds, after four or five years of aviary life, get patches of black and white on the copper-red of the face and throat, which greatly interferes with their beauty.

I have, from first to last, had some five or six dozen examples of this extremely hardy little bird. I have known it to stand 21 degrees of frost without the slightest inconvenience; and a friend of mine wintered some, in a somewhat exposed open-air aviary, in which the temperature may have been considerably lower.*

Jerdon writes of the Amaduvade as follows:—"This pretty bird is far from being common in the South of India. I have observed it in great abundance on the top of the Neilgherries, where it frequents meadows and bushy ground, but frequently also enters gardens, and is considered destructive to various seeds, buds, &c. I observed it in the Deccan, in the neighbourhood of well-wooded towns. It is said to be common in some parts of Mysore. Mr. Elliott says it is common in Dharwar, particularly in the sugar-cane fields, along with *M. malacca*. I am informed that it builds its nest of well-woven grass, attaching it to a stalk of *Rawala*. It is caught in great quantities in certain parts, and kept in cages with *M. undulata* and others. It is said to fight with great courage (for which purpose it is kept by the natives) and that it will continue the combat till blood is drawn on one or both sides."

In a later account Jerdon says:—"It frequents bushy ground, gardens, and especially sugar-cane fields, and long grass, associating in large flocks, except towards the end of the rains, at which season it breeds. The nest is large, made of grass, and placed in a thick bush, or occasionally in long grass or reeds, and the eggs, six to

* He also assured me that he kept the Zebra Waxbill in the same aviary; but, on reflection, I am convinced that he meant the Zebra Finch, specimens of which I saw there.—A.G.B.

eight in number, are very small, round and white. This species moults twice a year, the male after breeding assuming the plumage of the female. Large numbers are taken in many parts of the country and caged. The male has a pleasant little song, and it is also said to fight with much spirit, for which purpose it is kept by the natives. The popular name of *Amaduvad* was originally applied to this species, and Mr. Blyth has shown that this word took its origin from the city of Ahmedabad, whence it used to be imported into Europe in numbers."

F. Buchanan Hamilton states that it "inhabits long reeds on the banks of rivers. In spring, and the rainy season, it goes in large flocks; in October, they pair and begin to build."

There is not the slightest difficulty in getting this species to build in an aviary, if bushes are provided in which it can construct a nest, and plenty of hay for it to work with: I have had several of these nests built both in my bird-room and cool aviary: they are large obtusely elliptical structures; with a perpendicular length of some nine or ten inches, and a diameter of about five inches; the entrance hole is neatly formed a little above the middle and in front.

In every instance in which my *Amaduvades* have built, other birds have turned them out and taken possession of the nests. My first nest was built in a box-tree in the bird-room; but it was no sooner completed than a pair of Cordon Bleus drove out the little architects and seized their dwelling; these in turn, were ejected by a pair of Lavender Finches. The fight for possession, shortly afterwards, resulted in the death of the cock Cordon Bleu, and about the same time the hen Lavender Finch expired; the two widowed birds now consorted and occupied the nest for some time without result.

In my outer aviary all the nests were seized as fast as they were completed by a cock Parson Finch, who simply used them to roost in, and made a back door to each nest for his own convenience, or else to gratify his destructive instincts. One hen *Amaduvade* died egg-bound; but no eggs were deposited in any of these nests.

At dawn, and even a little earlier, you will hear the *Amaduvades* calling to and answering one another in an aviary; the call notes are clear and musical, like the song, and may be syllabled thus:—" *Tsee, tsit, tse-éo.*"

Dr. Russ is a great admirer of the *Amaduvade*; he says:—"I might pronounce this bird to be not only one of the most beautiful, but also the most lovable of all little *Astrilds*; I consider it the most pleasing of all."

"The feathering changes in an extraordinary manner, becomes

more brilliant at breeding-time, and afterwards again duller, even to plain grey; the beak always remains red. In the dealers' cages males and females always become darker, and sometimes almost entirely dark brown up to the red croup. Flying freely in the bird-room, or in a cage placed in a bright light, they recover their original colouring. If the claw-nails are not cut from time to time, they become monstrously long; what is more, the beaks sometimes become distorted."

"Male and female utter a charming, variable trill, but the latter only, as a rule, when there is no male present."

"*Courting* :—The male hops round the female in a singular manner, with elevated head and expanded tail. *Nest* rarely in a Hartz cage, almost invariably free in a bush, on the top of a wire-cage or in similar contrivances. In one case a suspended, tolerably deep, overarched bag of strips of paper and bast, horsehair, cotton threads, &c., with one or two exits, and lined with cotton and hair; in another case a large extraordinary piled up heap of the same building materials, with broad only half-covered cup. *Laying* almost invariably four eggs. During incubation the male drives every other bird from the vicinity of the nest. *Nestling-down* clear grey-yellow, waxy skin-glands (expansions of edges of mandibles), white. *Young plumage* uniform dull brownish, distinguishable from the regularly placed dirty yellow dots on the points of the wing-coverts and the yellow-red croup; beak shining black. *The change of colour* commences in the third week, when the beak and whole under surface of the body get brighter and the upper surface darker. After eight weeks, or thereabouts, the beak is red and then the Tiger-finch (German trivial name) is fit to go to nest. Altogether, the variations of colour are so changeful, that the lovely plumage described is first fully perfected after two years, during which time the feathering is perpetually changing in all parts, through yellow, brown, white into different hues, until the lovely red mantle and the white spots show up sharply.

"Nevertheless, the Tiger-finch may be recognized at all times and is purchased in all these plumages. *Nesting-season* :—Autumn (September) to January; three to four broods. By removing the means of nesting, also not difficult to breed in our spring and summer months. First bred by Dr. Bodinus, then in Cologne. Whilst the Tiger-finch readily and without difficulty nested in my bird-room, other breeders complain that, under favourable conditions, it never got so far as a hatch; or, if this came to pass the young would die, and meanwhile it would be quarrelsome. It is therefore, not always bred in proportion to the attempts, and rarely with satisfactory results."

There are various degrees of excellence among singers of this species: all sing on a descending scale; but a bad performer will only give an outline of the true song, represented by four or five notes; on the other hand, a really good vocalist, commences with five or six single shrill notes, all alike, each separated by a pause from the other, as though he were tuning his instrument, or trying to find the key-note: then suddenly he sings somewhat as follows:—"Tetti, tetti, tetti, tettitera, teeta, tur, tur," commencing high and rapidly running down, like a scale played on the flute with variations, the two last notes grave and low. The effect is decidedly pleasing; but the same individual never varies his song and, so far as I have been able to discover, a bad singer never improves.

I do not believe that the hen ever sings; judging from my own experience alone, I should be inclined to say that it certainly does not; but the cock bird sings at all seasons and when in female dress, which would lead anyone who was not certain of the sex of the performer, to imagine that a hen sang as well as a cock.

As a matter of fact you could not whistle the Amaduvade's song, with the lips as written above, though you might succeed better by whistling through the teeth; but the flute-like sounds uttered suggest the above syllables. I always try to get a clue to the suggested words by imitating the song immediately after hearing it.

Though very hardy and long-lived in a large cage, or in an unheated aviary, I find the Amaduvades drop off, one by one, in my bird-room more quickly than many other Waxbills: thus, in 1892 I must have added quite three dozen examples, to the half-dozen or so, which were previously living in the aviary devoted to small Finches; yet by February, 1894, there were certainly not more than half-a-dozen examples remaining; whereas, a dozen turned loose in 1892, in my coldest aviary, were all living at the above mentioned later date, in spite of severe frosts and the trying nature of this most changeable climate. Indeed, provided that the north and east winds are shut out, cold appears to invigorate these Waxbills, and I do not doubt that if turned loose in the extreme south of England they would thrive, provided that they could always obtain food.

Illustrations from living specimens and skins in the author's collection.

THE AFRICAN FIRE-FINCH.

Lagonosticta minima, VIEILL,

AN inhabitant of West Africa from Senegambia to the Niger. The general colour above rosy crimson, the back somewhat browner; the lower back and upper tail-coverts bright crimson; wing-coverts brown edged with crimson; flight feathers brown; tail feathers black, the outer webs washed with crimson; entire head, throat and breast rosy crimson, fading into yellowish brown on the abdomen; some small white spots on the sides of the breast; remainder of under parts brown, the under tail-coverts white at base; flights below smoky brown. Length $3\frac{1}{2}$ inches. Beak crimson, legs dark flesh-colour; eye-ring yellow; iris brown.

The female above is dark brown, with the lower back and upper tail-coverts crimson; a small crimson loreal spot, otherwise the head is brown; under surface of body yellowish brown, clearer on the abdomen, with white spots on the side of the breast; wing brown, tail black. Length $3\frac{1}{2}$ inches.

Heuglin gives the following account of the habits of this species which he calls "Zwergblutfink" or Pigmy Blood-Finch:—

"It usually assembles in little families, frequently mingled with Steel-Finches, more especially in towns and villages. Like the House-Sparrow, it does not seem to take kindly to straw huts, but we have often noticed it in villages of tents. It is inactive till the moult into the breeding-plumage in July and August. Then every pair, (and frequently several of them close together) forms its artistic little nest. This is placed under rafters of roofs, in holes in walls, and in crevices of window corbels: a great untidy heap of straw forms the foundation for the little flattish depression of the nest, which is constructed of horsehair, feathers, grasses, wool, &c. The number of the pure white obtusely oval eggs, which from their transparency shows a rosy tinge, varies from three to seven.

"The Blood-Finches are loveable, bold little creatures, which confidently invade the interior of stable, cooking or dwelling-rooms, in

order to obtain a few bread-crumbs. The call-note consists of a sharp chirp, the song is similar, though not devoid of melody. I rarely noticed this little bird by day on trees or shrubs; they prefer to remain on the ground, in draining ditches, on dung-heaps or places where the kitchen-refuse lies, also on walls, roofs and windows; and they are very unwilling to leave situations to which they have taken a fancy, so long as men reside in the neighbourhood."

"Hartmann observed whole clouds of the Pigmy Blood-Finch on the Blue Nile in May. I only met with this species in any unusual numbers in one locality in the town of Dongolah. There one discovers a tolerably extensive garden, consisting mostly of Lemon-trees. In the shelter and shade of the latter place the Blood-Finches are accustomed, and especially at midsummer, to assemble to take their night's repose. With lively and shrill piping and chirping they meet towards sundown, and pass a good time in noise before they go to rest."

This is probably the most sensitive to cold of all the African Waxbills; indeed, I found one night in an aviary, with a temperature of 50 degrees, destroyed it. I believe, however, that in a breeding-cage, of about two feet cubic measure, and with a box warmly lined with hay and moss, to which it might retire at pleasure, this little bird might be acclimatized as readily as its relatives in other genera of Waxbills. Nevertheless, a pair purchased early in 1897 and turned into a flight-cage so prepared, only lived about eight days. Even the apparently hardy Tits and Wren of our own country are totally unable to resist cold, unless provided with a night shelter.

When acclimatized the African Fire-Finch is tolerably hardy, and will live for years in a moderately warm temperature; and if anything approaching its natural climate can be provided, there is not the least difficulty in breeding it, either in a large nest-box, German canary-cage, or a bush.

Dr. Russ calls this the "Little Amaranth," or "Little Red Astrild." He says:—"This Ornamental Finch must be reckoned amongst the most beautiful of all foreign birds."

"Vieillot has already successfully reared the Amaranth, called by him *Petit Sénégal rouge*. Indeed, not one of all the Astrilds nests so easily as this. The nest most charmingly neat, concealed in the most dissimilar contrivances: Hartz cages with little baskets; abroad, nests which have not been used are taken possession of, covered nest-boxes, holes of any kind, also open nest-baskets, if concealed under overhanging shrubbery; the nest is never placed openly in a bush. It is built on a groundwork of rather coarse stalks and dead leaves or

green-food, of soft long strips of paper, bast and other threads, horse-hair, agave-fibres, hay stems, &c. Sometimes fresh asparagus-sprays, with the cup of cotton wool, short soft hair, hay, feathers, shreds and the like, always differing according to its position; at the same time artistic and spherical, with a lateral small and neatly rounded, but covered entrance and invariably overarched above. This Ornamental Finch breeds just as well in a small breeding-cage as when at liberty. It rears the young from four to seven eggs always satisfactorily, if accustomed to fresh or soaked ant's cocoons with yolk of egg or egg-bread, and the temperature does not fall below fifteen degrees Reaum. *Nestling-down* brownish-white; little warts at the angles of the beak beautiful blue white. *Young plumage*—almost uniform dirty grey; only the faint, still delicate dark red on the croup to centre of tail and the outer webs of the tail-feathers can be clearly recognized in this species; beak shining black; eyes dark, without yellow ring; the little spots on the sides are wanting. *Change of colour*—commences in the third to the fifth week; completed in six weeks, often, however, only after months; its duration depends upon feeding and temperature. So far as I know, first bred in Germany by Leuchfeld, in Nordhausen, then numerously and with the best results by other breeders. In the bird-room, as in the ornamental cage one of the most peaceable Ornamental Finches. It indeed quarrels with its allies at breeding-time, but without injury. Quiet and tractable, it delights one especially by its confiding behaviour and wise conduct. *Song* only a clear-sounding trisyllabic often repeated cry.

“When newly imported, both in bad feather and weakened, indeed sensitive to cold and damp; they sicken immediately on their arrival in the hands of the dealers in great numbers, or drop off still more, like the flies, without appearing to be ill.

“One should follow the counsel which I shall give further on in respect to just such imported birds; a dry temperature in fine is the principal thing for them.

“Mules have been reared from the Amaranth with the Beautiful croup (Lavender Finch) and Little Gold-breast (Zebra Waxbill.)”

In his larger work Dr. Russ observes:—“The red Astrild is a cosmopolitan, who knows how to suit himself to every situation, and always extract the greatest amount of benefit from it. Even his peculiar movement of the tail characterizes him as a quiet, circumspect character. Not wagging here and there laterally, but as it were meditatively, and deliberately up and down goes the tail, and only under strong excitement does it show a jerky, upward fillip. The

first pair in my bird-room daily slipped, with incredible boldness, over our heads as we opened the door into the dwelling-room, in order to seek here for some required building material or worms and other things from the numerous flower-pots. But still, more marvellous was it that these birds again returned through the door which, unlike the other, was only opened a little way. I have only been able to discover this trait in a few species besides these, such as Little Gold-breasts and Grey Astrilds, whereas others, though in all else very cunning birds, as for example the Little-Magpies (probably Bronze Mannikins), if they have flown off into another room, although with the door much more widely opened, can by no means easily find their way back."

Illustration from skin in the Natural History Museum.

THE LAVENDER-FINCH.

Lagonosticta cærulescens, VIEILL.

A COMMON, but extremely beautiful West African Waxbill, simple and chaste in colouring. Above it is pearl grey, with the lower back and upper tail-coverts bright crimson lake; the two centre tail feathers dull crimson, excepting at the edges, which are brighter, shafts black; remaining tail feathers black, dull crimson externally; flight feathers smoky-brown, with greyer outer webs; a black streak from the base of the beak through the eye almost to the ear; cheeks, chin and throat pale pearl grey, gradually deepening in tint backwards, until on the abdomen it becomes sooty-grey, relieved on the flanks by a few pure white transversely elliptical spots. The male blackish from the thighs to the vent, according to Mr. Abrahams.* Under tail-coverts bright crimson; under wing-coverts whitish grey;

* Mr. Abrahams also sent me coloured sketches to illustrate the difference in the sexes: the cock bird with the thighs and abdomen almost black; the hen with the same parts sooty-grey, not approaching black; my description is taken from a hen example.—A.G.B.



LAVENDER FINCH.
(*Lagonosticta caerulea*)

flight feathers below sooty-grey; tail feathers below slaty-grey. Length $3\frac{1}{2}$ inches. Beak black with a vinous red suffusion at the sides of the upper, and base of the lower mandible; legs blackish grey; iris greyish olive.

I have found this Waxbill even more delicate than the Crimson-eared species, an out-door aviary suits it admirably during the summer months, but, however vigorous its health may seem, the first sharp frost frequently kills it. Even in an aviary with a winter temperature of fifty degrees, I have rarely known it to live long: a cage such as I have already recommended for the preceding species, and the companionship of other delicate Waxbills, are the only means of saving its life, unless a high temperature can be ensured during the cold weather.

The flight of the Lavender Finch, or "Cinereous Waxbill" as it is sometimes called, is extremely rapid; indeed, I specially noticed that, when associated with other Waxbills, Mannikins, and English Finches in my cold aviary, this little Astrild flashed past them like an arrow, and would even cross their paths on the return journey before they reached their destination.

Dr. Russ has a number of trivial names for this Waxbill; that at the head of his remarks on the species is *Das blaugraue Rothschwänzchen* (the Little Blue-grey Red-tail), he says:—"The beauty of this lovely and delicate little bird is quite remarkable, and so forcibly recalls the tropics in the splendour of its colouring, that every friend of birds, even one who has the very slightest knowledge of the bird-world, must recognize it as an inhabitant of distant zones."

"The Red-tail only comes to us occasionally, although sometimes in considerable numbers at once, and frequently fails to come for many a long day. The dealers are not attached to the Red-tails, since they commonly arrive badly feathered, and in a deplorable condition, from the ships to the bird-shops, and when forwarded on subsequently, die too readily in hosts from damp, chills, &c. Kept together in narrow cages, the Red-tails are continually plucking one another and then succumb to every fluctuation of temperature whatsoever. In the bird-room, or in a roomy flight-cage, with suitable care, they quickly regain their feathers and very rarely become bald again. They should always be provided, in the flight chamber, or if kept in pairs in a cage, with a suitable retreat for the night. When they have recovered they are not so sensitive to cold as other apparently less delicate birds, and moreover, when they begin nesting they show themselves in their full beauty. Incessantly restless and

brisk, graceful and ornamental, throughout the whole day in perpetual motion. Their soft sibilant call-note, and louder flute-like cries sound pleasing and melodious."

"At the nesting-season the males quarrel fiercely; not more than one pair should be kept in a room. *Preparation for nesting*:—A Hartz cage, hanging high, with paper pasted outside, with an entrance-hole the size of a thaler (half-a-crown would do equally well), and a basket-nest with linen stitched over it. *Nest* of slender asparagus sprays, grasses, bast-fibres, and threads; spherical, with a narrow entrance, and lined with soft feathers. *Laying* four to five eggs, shining, roundish and very small. *Nestling-down* dark bluish, with blue-whitish wax-skin. *Young plumage* faint bluish ash-grey; croup and tail blackish red; beak only red at the tip, at the base dull flesh-coloured, the wax-skin large, beautiful bluish-white; feet reddish horn-grey, joints yellowish; eye black. *Duration of the entire brood* up to the flight of the young barely four weeks. First reared in my bird-room, and subsequently in a considerable number of others; this is, however, difficult, even when flying freely, and in a small cage indeed scarcely attainable. Males have been reared with the small Red Astrild."

"More tender, more shy, and yet more confiding than the Grey Astrild (common African Waxbill), and, for example, not difficult to accustom to take a meal-worm from the hand, the Red-tail in all other peculiarities, the further breeding proceedings, nourishment, &c., corresponds with its allies. In the aviary, or kept in pairs, it is one of the most delightful of all cage-birds, and the males which take pleasure in plucking one another, are not quarrelsome with any other companions."

In his *Fremdländischen Stubenvögel*, Dr. Russ tells us that at the commencement of his essays at breeding he was very unfortunate with this bird, he says:—"After I had procured five pairs at one time, and thereby, in the manner already frequently explained, obtained true pairs for breeding, I almost immediately found the assertion of the dealers confirmed, that this Ornamental Finch is generally delicate and weakly."

The difference in the sexes, indicated by Mr. Abrahams, renders it quite unnecessary for any beginner, now-a-days, to purchase five pairs in order to be sure of obtaining sexes; indeed, on several occasions this naturalist has, unhesitatingly, picked out and sold me undoubted pairs of Lavender Finches, which would unquestionably have bred in a well heated bird-room.

I found the Lavender Finch inclined to quarrel with the Cordon

Bleu at breeding-time, as already noted in my account of the Amaduvade Waxbill: indeed, it is a singular fact that many of these apparently peaceable little birds, which will sit in rows in the dealers' store-cages, preen one another's feathers, and never dream of disputing, when they are turned loose in a large bird-room aviary, will at times (but more especially in the breeding-season) attack one another with considerable fierceness.

Dr. Russ lost some of his first Lavender Finches, which escaped through a narrow interval between the netting over his window and the wall, and in the autumn when the nights were already becoming chill. A subsequent experience was almost as distressing; he thus describes it:—"The place in which the little Hartz cage was situated, high up near the ceiling of the room, was very difficult of approach, because below it much dense scrub, quite richly studded with nests, was collected. Until the flight of the young, from some of these nests, I was therefore obliged to put off the examination of the Red-tails' brood. When, however, I had an opportunity to take down that little Hartz cage—who can describe my astonishment and my distress! Immediately I found the nest of the little Red-tails entirely closed up, so that I could nowhere discover an opening; and when I cleared away the entrance hole, I saw that it was fast stopped up with the stems of grasses different from those used for building the nest. Inside were the two little birds lamentably starved upon five almost completely incubated eggs."

"Further observation enabled me to arrive at the following explanation. In the bird-room there was also a pair of Parson birds or Banded Grass-Finches, which, in common with several other species of birds, are accustomed to construct one nest after another with great assiduity, then to desert them, in order hastily to begin a new one. Thus they proceed for a considerable time before they finally go to nest in earnest."

"Now these birds, since the little Red-tails had betaken themselves to rest very early in the evening, had completely filled up the narrow entrance-hole behind them as they squeezed in the blades of grass and the like. Had I had a presentiment of the event, the imprisoned birds could have been easily saved; but even in those days I could not find leisure to observe attentively and watchfully as formerly, as I was much occupied with urgent duties."

As I shall have to point out later in this work, the Parson Finch is quite unsuited for the bird-room, and should only be associated with birds stronger than himself: beautiful though he is, he is at all

times more or less of a bully; and, in the breeding-season, is quite unbearable as a companion to Waxbills; constantly pulling their work to pieces, or turning out the builders, and using a nest as a warm roosting-place in which to pass the night.

Mr. Wiener gives no additional information respecting the Lavender Finch, and as all that he tells us is evidently quoted from Dr. Russ' works, it would seem as though he had not kept the species: but this can hardly be the case with so cheap and readily obtainable a bird.

The illustration of the hen-bird on my plate, is taken from one which died in my outside aviary, at the approach of the winter of 1893-4. In March, 1895, I purchased two others, one of which died in the following winter, but the other is still living, as I go to press, in March, 1898.

White millet, millet in the ear, canary and grass-seed form the food of this species in confinement. In its wild state it doubtless feeds on the seeds of weeds and grasses which it obtains when on the ground.

THE VIOLET-EARED WAXBILL.

Granatina granatina, LINN.

[NHABITS South Africa, eastward to the Zambesi, and perhaps to Angola westward. It is a very beautiful little bird, but is so little imported that I have never seen specimens offered for sale.

The general colouring of the male above is soft chestnut brown, greyer on the lower back; the wing-coverts and flight feathers greyish-brown, with redder margins; upper tail-coverts bright metallic blue; tail feathers black, slightly bluish on the margins; base of forehead bright blue, continued as a narrow line above the eyes; lores dusky; eyebrow, ear-coverts, and sides of face bright lilac; base of cheeks and front of throat black, gradually diffused hindward; under surface chest-



VIOLET EARED WAXBILL. ♂. ♀.
(*Granatina granatina*)

nut brown; the lower abdomen and vent blackish; under tail-coverts metallic blue; flight feathers dull brown, with pale inner web; length 5.3 inches; beak purplish with red tip; legs purplish grey; iris red; eye-ring red or greyish drab.

The female is greyer above and yellower below than the male; its throat whitish, the lilac on the face paler, and under tail-coverts not blue. This bird has also been called the "Granat Astrild" and the "Grenate Finch." Messrs. Sharpe and Layard were able to give but a meagre account of its habits in a wild state, as follows:—"Sir Andrew Smith found this species between the Kiegariep and Kurrichane, and we have received it from Mr. T. C. Atmore from Griqua Land. Writing from the Transvaal, Mr. Ayres says:—'The first of these pretty birds which I met with I shot in the Mariqua district, amongst some very thick cover; and I afterwards found them plentiful along the Limpopo; they are generally in pairs, but sometimes three or four may be seen together. All the *Estrelæ* are pretty nearly alike in their general movements, and eat similar food.'

"Mr. Frank Oates obtained the species at Tati, and Mr. T. E. Buckley found it common in the Matabele country, where they go about in small flocks.

"Mr. Anderson observes:—'This species is not uncommon in Damara Land, but is more abundant further north, and also at Lake N'gami. It congregates in small flocks and feeds on little seeds, which it seeks upon the ground.'

Holub speaks of the resemblance of this Finch to the Weavers and Whydahs, as regards its tasteful plumage, the change of the same, and its manner of building. He must, therefore, have been acquainted with the nest, though he fails to describe it, the eggs, or their number. He, however, tells the same tale as other writers as to its seeking its food (consisting of seeds and insects) among the grass and on the ground.

Russ says that this Waxbill is "one of the first that was brought alive to Europe (it had already reached Paris in 1754), but since Vieillot's time, and up to the present, has almost entirely disappeared from the bird-market. Considering its beauty this is much to be deplored, and, therefore, I am all the more delighted that I have at least once received this rare bird alive, and moreover, have seen it several times. Fockelmann, in Hamburg, sent me in 1874, a male and two female Granat Astrilds, and these must, moreover, have been the first which had ever reached Germany alive."

"Dr. Jantzen, of Hamburg, in the winter of 1869-70, acquired a pair on a ship at Madeira, the only Granat Astrilds which he saw at

that time among thousands of birds on ships which arrived there from West Africa. He kept them for a long time in a cage, and designates them as splendid coloured, pleasant, peaceful birds. Moreover, in 1870, A. T. Wiener, of London, bought three Granat-Astrilds at Liverpool. At the Berlin Bird-show of 1877, Miss Hagenbeck had a pair, and H. Möller three males. Prince Ferdinand, of Saxe-Coburg-Gotha, obtained Granat-Astrilds several times. Now and again single Granat-Astrilds arrive in Hamburg and London."

"It is to be hoped that this ravishing Astrild will again be regularly imported, and this may be expected to happen as soon as the tracts in Africa, which it inhabits, are more thrown open to trade and commerce. It will surely never come into the bird-market in great abundance."

I do not quite see the force of this last observation, unless the Violet-eared Waxbill should prove to be too delicate to reach Europe in any quantities. In Africa it is common enough, as may be seen by the series of dead specimens in collections. So far as I can see, there is no reason why large consignments should not be imported.

Mr. Abrahams wrote to me, on December 12th, 1893, as follows:—"I have never had a Violet-eared Waxbill, but a short time ago there were a few at the 'Zoo.' However, in the winter of 1896-7, he purchased two pairs from a client which were sold at, I believe, £10 the pair; of these one pair was exhibited at the Crystal Palace Show for 1897."

It seems to me that, in the case of rarely imported though common birds, like the Violet-eared Waxbill, or the Australian Fire Finch, it would pay the dealers to have plates drawn on stone and coloured; the coloured illustrations might be sent out to the nearest port to the head-quarters of these birds, with an order for a large consignment. When birds are abundant they can be caught, and if natives are paid to catch certain species, there can be little doubt that they will be glad to obtain them. As Dr. Russ says: single specimens arrive now and then, and fifty or a hundred head could be as easily sent home as single specimens: where there is one Waxbill there are many not far away, for, when not breeding, almost all the species (if not all) move about in large or small flocks and find their food upon the ground, so that there ought to be no difficulty in snaring or netting them.

I was speaking, a few years ago, to the owner of an estate on the Transvaal, where some of Mr. Ayres' specimens were shot, and he assured me that there would be no difficulty in obtaining birds, or in making rough cages in which to send them home; the only difficulty would

be in transporting them to the ship which was to bring them to Europe. This gentleman, though not a young man, had himself brought a heavy case of butterflies with him to England, and I pointed out to him that a cage of birds would be lighter, and certainly quite as easy of export as that packing-case; the butterflies might be carried unset in a very small compass, and a valuable consignment of Violet-eared Waxbills and other saleable birds, substituted for the heavy box, in which his pinned insects had been brought home. In the interest of science, it is to be hoped that he will adopt my suggestion when he next visits Europe.

Dr. Russ tells us that "the first living bird of this species which was brought to Europe, must have been that received, in Paris, in 1754, by the Marquise de Pompadour. She was known to be an enthusiastic friend of foreign birds, and kept this Astrild alive for three years."

"Vieillot designates the Grenadine as one of the most beautiful and elegant, but also most delicate of all these little Finches; he praises its gentle and yet so lively disposition and its lovely song. With regard to the latter, both ancient and recent writers, namely, Vieillot, after him Reichenbach, and then again Von Heuglin, are certainly not making assumptions, as they almost uniformly praise these little Ornamental Finches as excellent singers. I invariably quote such statements as a matter of course; but in all the instances, in which, according to the unanimous declarations of all breeders and observers, the said bird in captivity either does not sing or scarcely enough to be worth mentioning, I have recorded the latter as being simply matter of fact."

Wiener says that this bird lived in his aviary for nearly two years in a very moderate temperature, and sang merrily and sweetly, with a thermometer between 50 and 55 degrees Fahr. He parted with him to enable a friend at Baden-Baden, who had a hen-bird, to try to breed the species. The bird travelled from England to Germany in February without any ill-effects.

Illustrations from a living example in the Zoological Society's Gardens, and from skins in the Natural History Museum.

THE CORDON BLEU.

Estrilda phænicotis, SWAINS.

THIS little bird, which is also known as the Crimson-eared Waxbill, is largely imported, and consequently, in spite of its great beauty, is obtainable at a very reasonable rate. It inhabits Senegambia to the Gaboon, N.E. and Eastern Africa, as far south as the Zanzibar district; Equatorial Africa and the Congo River. The male above is of a mouse-brown colour, with the lower back and upper tail-coverts of a bright cobalt blue; the tail, Prussian blue; the cheeks, throat and breast cobalt blue, this colour also extending along the sides of the body; the ear-coverts bright crimson, forming a crescentic patch; centre of breast, abdomen, thighs, and under wing and tail-coverts, pale mouse-brown; the flight feathers above and below dull brown; length $4\frac{7}{10}$ inches. Beak crimson; legs flesh-coloured; iris yellowish; feathers encircling eye slightly paler than on the rest of the face.

The female chiefly differs from the male in the want of the crimson ear-patch.

In its wild state, according to Heuglin:—"This delicate little bird lives in Abyssinia up to 7000 feet above the sea level, in Takar, Senaar, on the White Nile, and in Kordofan: it is nowhere exactly abundant, does not, like its relations, collect into large companies, but is mostly seen singly or in pairs, both in thorn-hedges about villages and farm-holdings, and in forest region, especially in the vicinity of water courses. It is a resident bird, and incubates in extremely peculiar nests, which if casually examined, have no distinct form, and appear to hang in a bush like little stray heaps of straw; they are loosely placed between knots and twigs, or in hedges, generally at a height of from 4 to 8 feet. The exterior of the entire completed nest consists of fine dry straw stalks, the points of which usually run inwards, in a definitely oblique direction, towards the top; a little concealed sloping opening leads into the very elegant nest-cavity, which is lined with grasses, feathers and wool. Before, after, and during the rainy season, I found in them from three to six pure



CORDON BLEU.
(*Estrilda phoenicotis*.)

white, somewhat cylindrical eggs, which when incubated became opaque and milky." He then proceeds to tell us that the Granat-Astrild, like *Uroloncha cantans*, also uses the residences of little Weaver-birds and that the song of the male consists of a little pleasant whispered melody.* Whether he calls this bird (like its cousin *Granatina granatina*) a "Granat Astrild," is not clear; but a note at the foot of the page proves that he is well aware of the entire distinctness of the two species. He further informs us that "Dr. Hartmann saw large flights of *Uræginthus phænicotis* in the primeval forests of the upper Blue Nile."

Dr. Russ calls this the "Butterfly Finch" and writes of it as follows:—"A colouring peculiarly its own, and a peaceable, but, at the same time intelligent disposition, distinguish this Ornamental Finch from others."

"It is one of the birds with which, more than a hundred years ago, attempts at breeding had been made; it had already been bred by Vieillot and others; but no detailed observations published. With us, it was first reared, accurately observed and described by Hermann Leuchfeld, of Nordhausen. The pair after several breeding failures, brought up two and then seven young ones. Then it was also bred in my, and later in many other bird-rooms. They almost always build openly in a bush and generally high up near the ceiling. The male brings building material, the female constructs the nest, of hay-stems, threads of bast, strips of paper, lined with horsehair and cotton thread, feathers and soft strips of paper. A round, flattish bag, with side entrance concealed by overhanging stalks, externally disorderly, internally carefully rounded and artistically disposed. *Nest* built in seven to nine days, but even when they have commenced incubation, they carry up to it stalks, feathers, etc. *Down* blue-grey; the little beak-warts blue-white. *Young plumage* like that of the adult female, but only soft blue on the breast, side, croup and upper tail; the beak black, eyes black, feet black; the red cheek-spot is absent. *The change of colour* takes place in the fifth to the eighth week, when in the proper places the blue appears, ever growing more defined and in the male the red cheek-spot.

"Almost the most delicate of all Ornamental Finches. The hens die with the slightest fluctuations of temperature, and in the nesting-season, unhappily, frequently from egg-laying. It is therefore, best in Autumn and Winter to deprive them of the means of breeding

* As none of the Waxbills sings more shrilly than *E. phænicotis*, it would seem that this observation refers to *Granatina*.—A.G.B.

and only provide these in our Spring. They nest equally well in a cage or flying freely in the bird-room; are peaceable with other birds and one another; several pairs can be kept together. For feeding their young, they require fresh small ants' cocoons, or must be accustomed to soaked ants' cocoons, with egg-bread and always soaked seeds. At times they die quite as abundantly as the little Amaranths, and after their arrival are even more delicate. With intelligent attention, however, they live for many years, especially in the bird-room, but also in fancy cages. Almost always to be had from the dealers."

"Male and female warble a melodious bar; love dance comical accompanied by loud, piercing, not unpleasant, whistling sounds; a connoisseur and lover of singing would indeed not be enraptured. Mules reared with the little Helena-pheasant."

My first pair of Crimson-eared Waxbills, as these little Finches are sometimes called, was given to me by my friend Mr. J. Johnston (brother of the well-known African traveller). I had previously never seen living examples and, noting their remarkable beauty, was afraid that my good friend had been obliged to pay an enormous price for them. However, on this head, he soon reassured me.

Although, at that period of my bird-keeping, I had but poor accommodation for my feathered favourites, I succeeded in keeping that first pair of Crimson-ears for eighteen months, and with a winter temperature, which often fell as low as 40 degrees Fahr. Of course they eventually died of a pulmonary disease.

In my present bird-room I have, from time to time, had a good many pairs, none of which, until 1893, lived very long; most of them, indeed, dying within from two to three weeks. Undeterred by the warnings of A. F. Wiener, who incorrectly states that this species will not live without a winter temperature of from 60 to 70 degrees Fahr.; I determined, in 1891, to try the effect of cool treatment. During the Autumn, therefore, I turned out a pair of the Cordon Bleu into my most exposed cold aviary. The hen bird soon after was frightened to death by a cat springing at the wire-work, in the attempt to catch it as it clung there; but the cock bird lived on, flying briskly about, with his shrill key-whistle going from morning to night, he stood six and even eight degrees of frost, and positively seemed to enjoy the cold; but, late in December, eight degrees, accompanied by fog killed him.

Now, there is a great discrepancy between 24 and 70 degrees; so that I am convinced that a bird strong enough to enjoy the former

(until accompanied by fog) if it had been in my bird-room with a temperature not falling below 50 degrees, might have been living at the present time.

Early in 1893 I purchased two pairs, turning one pair into a breeding-cage with a box in the corner, and the other into my bird-room, the hen of the second pair died within a few weeks, but that in the breeding-cage lived for several months. Both cock birds lived until the Autumn of 1896; subsequently I secured a pair, of which the hen died in a month or two, but early in 1897 I purchased a cock and two hens, of which a pair is living as I write. I am, therefore, certain that, with patience and care, hardy individuals of this delicate little Waxbill might gradually be acquired, and strong offspring reared from them.

The two principal objections to breeding Crimson-eared Waxbills are:—the difficulty of getting hold of sufficiently vigorous hen-birds, and the unremunerative nature of the occupation. The female Cordon Bleu is so much more sensitive to atmospheric changes than the male, and so rarely lives, excepting in a decidedly hot and dry temperature, for more than a few weeks; that, in order to select really vigorous specimens to breed with, it would be necessary to purchase your hens by dozens. But, supposing that from a dozen hens, two should be obtained strong enough to pair, sit, and rear four youngsters apiece, what then? There is the satisfaction of having accomplished a difficult feat; but the bird-room is no richer:—ten hen birds have died and eight young birds have been reared, the fullest value of which, apiece, is half-a-crown. Meanwhile the time and anxiety devoted to the object of rearing Crimson-eared Waxbills, might have been far more profitably given to the multiplication of Gouldian Finches, Cherry, Diamond, Bicheno or Parson Finches; or, perhaps, more successfully, in the production of some of the interesting mules between common species, which have at times been bred.

A nearly allied species, *Estrilda angolensis*, occurs in South-eastern Africa, and (according to Dr. Sharpe) apparently ranges to Mozambique on the east, and to Damara-Land on the west. It differs from *E. phænicotis* in that the male has no red ear-patch, but resembles the female: according to Mr. Ayres its beak is "lilac, blackish at the tip; tarsi and feet pale; iris reddish hazel." I believe it has recently been sparingly imported; and, on account of its close relationship to *E. phænicotis*, the following account respecting its habits by Messrs. Sharpe and Layard may be of interest:—

"The present species was procured by Sir Andrew Smith, between

Kurrichane and the tropic of Capricorn." Mr. Barratt says:—"I shot this Finch round about the gardens at Rustenberg, I did not see many of them in flocks, and they appear to be rather local birds."

"Mr. Ayres writes:—'In November, 1864, I found this pretty species in some numbers amongst the bush on the banks of the Tugela, in Natal, and my brother has recently met with it on the Limpopo.' Mr. Buckley met with it in the Transvaal, and in the Matabele country; and the late Mr. Frank collected several specimens at Tati. Further north it appears to be common, for Mr. Ayres says that during Mr. Jameson's expedition they found it one of the most plentiful of the small Finches, and very widely distributed. Mr. Anderson has the following note:—"This pretty little Finch is common at Lake N'gami, and in the neighbourhood of the Okavango River; but I do not think that it is found either in Damara or Great Namaqua Land. I have heard, occasionally, of immense gatherings of these birds; but usually they are found in small flocks, seeking on the ground for their food, which consists almost entirely of the seeds of grasses. On the 2nd February, 1887, I found in Ondonga a nest of this species in a palm bush, about six feet from the ground; it was constructed of grass, and had no internal lining; the eggs were five in number."

"Senor Anchieta has met with the species at Biballo, where it is called "Kaxexe."

Dr. Russ, in his *Fremdländischen Stubenvögel* gives several interesting accounts of the rearing of Red-eared Waxbills in confinement, by his deceased friend Mr. Leuchfeld; but I cannot, unfortunately, spare the space to repeat them here. One item, however, is of importance to any fancier who may desire to breed the Cordon Bleu:—Mr. Leuchfeld found that, at first, the old birds would only use living ants' cocoons, as food for their young; but these were difficult to obtain; he therefore powdered up yolk of egg, as finely as possible, and mixed it with the living food, and from accidentally but repeatedly tasting the latter, the parents were gradually coaxed into using it by itself; the result being a decided success.

Illustration from living examples and skins belonging to the author.



COMMON AFRICAN WAXBILL. ♂.

(*Estrilda cinerea.*)

ST HELENA WAXBILL. ♂.

(*Estrilda astrilda.*)

THE COMMON AFRICAN WAXBILL.

Estrilda cinerea, VIEILL.

THE African Waxbill inhabits Senegambia to the River Niger, across to North-eastern and Equatorial Africa, and southwards to the Tanganyika district.

The general colour above is deep greyish brown, the tail dark brown, the under parts pale brownish; the cheeks and chin whitish; the breast washed with rose-colour; the centre of the abdomen is occupied by a diffused rose-red streak; the sides of the face and the chin are whitish; the beak, and a streak from the beak through the eye to the ear, are deep coral red; the whole of the feathers in both sexes are transversely barred with blackish or brown lines; the female has less rose-red on the under parts than the male, but otherwise is very similar. Length 4 inches. Legs flesh-brown; iris brown.

Dr. Russ calls this "The Grey Astrild," and says that it is frequently and in great numbers obtainable in the bird-market, not only regarded by amateurs with great affection, but also treasured by the dealers. Enduring, little delicate, it hardly ever comes into the trade badly feathered, is beautifully if not exactly splendidly coloured, is graceful in its manners and uncommonly lively.

Singularly enough of the many examples, which I have at various times possessed, of this pretty little bird, only one has lived with me for any great length of time: indeed, I do not believe any of my specimens of *E. cinerea* ever lived longer than a year. One year a pair constructed a very beautiful and almost perpendicularly oval nest, in a bush in my bird-room, forming the outside entirely of hay neatly plaited together: the hen sat inside and passed the ends of the bents through to the cock which clung on outside and passed them back to her; the entrance was at the front, circular; the lining so far as I could discover, also consisted of finer hay, but there may have been other materials mixed with it; three or four eggs were laid, but not hatched, the other Waxbills being too much interested in the proceedings to give the parents much peace when sitting.

Dr. Russ says:—"If not allowed to nest, the Grey Astrild is easy

to keep in the warmth of a room,* also in pairs in a cage as in an aviary, where it is one of the most peaceable, and endures in excellent condition for several years. Its breeding is more difficult than that of many other Ornamental-finches. Flying freely in a bird-room, a pair may, perhaps, once in a way attain to a productive brood; in a cage on the contrary, let it ever be so advantageously disposed, the result always depends upon a rare fortunate accident. If one wishes to get a pair to breed flying freely, it will eagerly take steps to breed in August and September, and if disturbed, again in March and April. It is best to let it breed in the Spring, as soon as fresh ant's cocoons are to be had. Of green asparagus-sprays, they construct in a little basket a spherical, over-arched, elegant, true work of art, with lateral narrow entrance hole, in which the cup is lined with hair, cotton, threads, etc. At another time they willingly form a similar nest of agave or aloe-fibres; also, out of all kinds of building materials they heap up a shapely tower, which reaches from the nest-basket to the roof of the cage and thereon they place a badly arched similarly lined cup. Laying: three to five small, elongated pointed shining white eggs. Male and female incubate in turn, often also for hours in company. *The breeding*, from the first egg to the flight of the young, is compassed in about four weeks. *Nestling-down* pale bluish-white, with beautiful blue-white wax-skin on both sides of the beak. *Young plumage* like that of the adults. Beak, however, shining black; the red superciliary stripe, the rose-red suffusion of the lower body and the wavy marking are wanting. *Change of colour* usually three weeks after flight; the feathering becomes uniformly darker, and more noticeably clear grey, the red superciliary stripe appears by degrees; the beak becomes lighter and changes from dirty-yellow and yellow-red into true red; also the wavy lines become gradually visible. In the fifth to eighth week the change of colour is completed, so that, if the nesting season should come on exactly then, the rose red of the under body is already coming to the surface. The distinction of the sexes is so much the more difficult, since two of the same sex, placed in one cage, show the tenderness of a true pair, and this is one more reason for the difficulty of breeding them. This happened, moreover, to me at first. Hybrids have already been reared between the Grey Astrild and the Little Helena-pheasant, Orange-cheek, Little Gold-breast and Amaranth. The Grey Astrild has no proper song; both consorts of the pair utter piping, melodious call-notes, and a low whispering,

* This would probably represent a winter temperature of between 60 to 70 degrees Fahr; considerably more than my birds ever enjoyed.—A.G.B.

and the male accompanies its dancing love-movements with loud chirruping flute-like cries."

In his *Fremdländischen Stubenvögel* Dr. Russ observes:—"As with many animals and particularly the birds, the tail is also in a special manner in the case of the smallest Ornamental Finches the signal or indicator, which reveals their feelings. This shows itself to the observer in a very interesting fashion. In the cool of the morning, the pair cowers in the scrub, closely pressed one against the other, and with motionless tails; as soon as the sun shoots down warmer rays, and the company of Little-beaks grows more lively, the tails are immediately put into appropriate motion, and I might almost affirm that every varying sentiment could be expressed by a different kind of whisk with the tail. Now they fly to the food-basket, '*heioza!*' * now the tails merrily see-saw sharply up and down. Then they hasten to the drinking-bowl, from which a Weaver-bird drives them back, and, again, a different feeling is expressed by the nervous downward swing of the tail. After they have drunk they flutter about in the bush, restlessly darting here and there and searching. Now they seem to have discovered what they sought; it is a nest-basket, hanging in a large wire-cage, and whilst the male stands on the edge of the basket, and the female in the entrance to the cage—how differently once again the tails jerk, the graceful movements go horizontally from right to left, and momentarily, both birds are engaged in the most searching investigation and deliberation, as to whether the nest-basket is suitable for the purpose and fulfils all its pretensions. At last the choice is fixed, and the male now begins, with methodical haste, to drag up building materials for the construction of the nest, whilst the female at first sits on one side apparently unconcerned, but presently slips into the quickly rounded nest and completes the interior of the outer structure. Then at noon, as soon as the two Grey Astrilds, like the majority of other Ornamental Finches, have had their rest, closely huddled together, the male suddenly flies upwards, raises his head high and saucily, and now begins a comical jumping up and down." Dr. Russ then proceeds to describe the courtship in much the same amusing and interesting fashion, the escape of the female whilst the male is engaged in his love songs, the pursuit and capture of the bride. Indeed, Dr. Russ has the art of being not only instructive but entertaining in his writings: the only difficulty to an English translator is his occasional use of terms not to be found in the

* Whether the English equivalent of this expression is "*Fire away!*" or "*Go it!*" I have been unable to discover.—A.G.B.

majority of dictionaries; some of them, perhaps, coined for the occasion, others technical, or perhaps, popular trade terms, equivalent to such English words as "Old Judge" or "Navy-Cut"; all of which are doubtless as clear as noonday to the German reader, but a Cimmerian fog to the English translator.

Illustration from a skin of the male in the Natural History Museum.

THE ST. HELENA WAXBILL.

Estrilda astrilda, LINN.

A South-African species, ranging to the Matabele country on the east, and to Damara-Land on the west. Introduced into St. Helena, Mauritius, Madagascar, &c.

This Waxbill nearly resembles *E. cinerea*, from which it chiefly differs in its superior size (length $4\frac{1}{2}$ inches), its deeper and greyer colouring above, the greater development of rose-red on the abdomen, and its long tail.

Messrs. Sharpe and Layard give the following account of the habits of the St. Helena Waxbill; or Red-beak, as the Boers call it:—"These little birds congregate in prodigious flocks throughout the colony, frequenting the fields of grain, ploughed lands, and vineyards. They are not unfrequently found close to habitations, and their little shrill piping notes may be heard even in towns."

"The 'Roodebec' is found in all parts of the colony, and extends into Natal. Mr. F. R. Barratt states:—"I recognized this little bird nearly all over the country, Orange Free State, Diamond Fields, Pretoria, Lydenberg Gold Fields; and I have seen it in the Kaffir gardens a few miles further north. I also met with it at Rustenberg. They congregate in large flocks, and are said by the Boers and farmers to do considerable damage to grain crops."

"Mr. Frank Oates procured it in the Matabele country, where it

was also observed by Mr. Ayres during Mr. Jameson's recent expedition. Mr. Anderson observes:—

“This pretty little species is common in the southern districts of Damara Land, and in some parts of Great Namaqua Land, as well as at Lake N'gami. It lives in flocks, and is generally found upon the ground, where it seeks its food, which consists of seeds, insects, etc.”

“Mr. Monteiro found the bird very abundant in Angola, particularly to the south, where it is gregarious, and seen in flocks of hundreds of individuals.”

We extract the following note of the author from the first edition of the work:—“They breed in communities, and it is said that several inhabit the same nest, laying and sitting in it promiscuously, and sometimes three or four together. The nest is a large structure, composed of straw, grasses, feathers, wool, paper, rags, etc. It is often as large as a stable bucket, round, and with an entrance in the side. The interior is a mass of feathers; and the eggs, from eight to fourteen in number, are pure white, oval and about 7''' long, by 4''' broad.

“These birds live well in confinement, and add much to the appearance of an aviary, by their sprightliness, and beauty of their plumage, when many are together. It is no uncommon thing to see a dozen or more on one perch, sitting close up to each other for company's sake. I have four, which have separated themselves into two pairs, though agreeing all well together. The birds of each pair are always together, cleaning and caressing each other. When I put in the bathing vessels, they all crowd into them in defiance of all the bigger and stronger birds; and it is no unusual thing to see two canaries, or one canary, the ‘King of the Roodebecs,’ and three or four ‘Roodebecs,’ all in one vessel at once, splashing, ducking, and jostling one another in narrow bounds, to which their cage restricts them.”

Mr. Atmore writes, December 12th, 1887:—“You know what a funny wisp of a nest it makes, and how carefully concealed; but how such small birds carry such large bents of grass is a puzzle. The inside is very warm and comfortable, and what may be called the frame-work of the nest is very nicely contrived, so that all the ear-ends of the grasses are woven together to form the pipe where the entrance is. The nest was in a thicket of brambles and fern, about six inches from the ground. Even after the bird flew out, it required a good search before I could find it. There were twelve eggs in it (whether more than one lays in a nest I cannot say, but only one flew out), they were in all stages of incubation—two not set, and four or five had young birds, so large I could not blow them.”

This species of Finch, observes Mr. Ayres "is by far the most common in Natal; during the winter months immense flights of them may be seen. They are fond of frequenting cultivated ground, especially that on which weeds have been allowed to grow and seed, where they find abundance of food."

Dr. Russ calls this the "Little Helena-pheasant." He says:—"A not only exceptionally charming and soft feathered, but also in its disposition an infinitely loveable little bird. Always lively, smooth, spruce, and cleanly in its feathers, never stupidly shy, but if even nervous, nevertheless, confiding and soon tame; it gains the affection of all amateurs and especially of ladies in high society. It is called 'Little Pheasant' because in its love-song and dance it exhibits a Pheasant like appearance."

"Flying at large in the bird-room the Helena-pheasants nest readily, and regularly rear their young without mishap, provided they get fresh ants' cocoons, or if accustomed to egg-food, and the temperature never falls below fifteen degrees, Reaum., that is to say, however, provided they are not disturbed by other birds; in an extremely large cage it is more difficult, because in the nesting season they are unusually lively."

"When breeding very loveable; the male utters a loud warbled song of joy, of some bars.* *Nest* generally placed openly in a bush or on a support usually high up near the ceiling; in my bird-room they have never chosen a Hartz cage or nest basket. It resembles that of the Grey Astrild, and nevertheless, from its locality, has a different aspect. With me they chose the coarser building materials. They heaped up a high tower of dried chickweed, thick hay stalks, shreds, etc., and with cotton threads, long horsehairs, feathers and wadding they formed a neatly smoothed but barely over-arched cup."

"Male and female built and incubated in common, like the Grey Astrilds. This species also, I was the first to breed. *Laying*:—Three to five longish tapering eggs. *Nestling-down* of the young bluish; *young plumage* almost like that of the adults, the beak, however, black. *Change of colour*:—The red on the lower breast and abdomen constantly comes out more strongly; whereby the feathering always appears a darker brown; about the fifth week the beak becomes coloured as in the Grey Astrild. Hybrids have hitherto been reared from the Helena-pheasant with the Grey Astrild, Orange Cheeked, as well as the little Silverbill and Thorn-Astrild (Sydney Waxbill.)"

* I cannot say that I have ever heard more than six notes in this song, which is, however, wonderfully loud and clear.—A.G.B.

"In the course of time the Helena-pheasant has nested in many bird-rooms, and is one of the most diligent, but also most unreliable nesters. When breeding, not peaceable towards its own kind; two breeding pairs must never be kept in one room. In an aviary-cage, however, entirely pacific. In spite of its apparently powerful body, tender and weakly, readily perishing from cold, damp and draught: easy to keep in the temperature of a room."

As the temperature of my bird-room is lower than that of a German dwelling-room in winter, I have never been able to keep the St. Helena Waxbill there for any length of time: * indeed, with me it has gone off more quickly than the "Common African Waxbill." And yet, I do not believe that dry cold kills this bird necessarily: but rather sudden fluctuations of the temperature, and I base this opinion on the following evidence:—

In 1893, a friend brought me three St. Helena Waxbills, and told me I could have them at the absurdly low price of eighteen pence a head. I declined at first on the score of never being able to keep these birds alive for more than two or three weeks: he, however, did not seem to care much about taking them home again; so, as they were in first-rate condition, I thought I would try the experiment of cool treatment upon them. I turned these three St. Helena Waxbills into my coolest aviary in October, and they all lived happily there until the middle of November; when first one, and then the second died: the third continued to live, in spite of six, twelve, and even twenty-one degrees of frost, and lived in health until late in 1896, having passed three whole winters without warmth.

For this species, as for the other African Waxbills, I should recommend a large box-cage with a warmly lined night shelter; unless a temperature of at least 60 degrees, Fahr. could be secured. In my own case this is a difficult matter, as I have a large area to warm, but, nevertheless, I shall eventually endeavour to obtain a higher temperature for my pets. For, although I have proved, that cold and even a certain amount of dry frost do not necessarily kill the most delicate birds; it stands to reason that they must feel happier and more inclined to breed in a climate which more nearly approaches their own.

On the other hand, it is a singular fact, that birds coming from the hottest parts of India and Australia are often able to survive severe winters in an unheated aviary; indeed the Gouldian, Diamond,

* In 1895 I was more successful, a pair then purchased having lived until 1897, as did a second pair obtained in 1896.—A.G.B.

Parson, Zebra, and Cherry-finches of Australia utterly disregard very severe frosts, provided that they have plenty of space for exercise and boxes to which, if they desire, they can retire at night.

Illustration from living specimens and several skins in the author's collection.

THE AUSTRALIAN FIRE-FINCH.

Neochmia phaeton, HOMBR. ET JACQ.

THIS species is an inhabitant of Northern Australia, ranging from the north-west to Cape York, and to Rockingham Bay, and Port Denison. Its general colour is crimson, brightest on the upper tail-coverts, base of forehead; sides of face and sides of body below; above, the lower back is brown, as are the primaries; the tail feathers have dusky inner webs; the crown and back of head are dull brown, blacker in front; the sides of the breast are spotted with white; the centre of the lower body black; the under wing-coverts yellowish; the flight feathers below dusky, with yellowish inner webs. Length 5 inches. Beak carmine, broadly whitish at base; legs ochreous, reddish in front.

The female is paler than the male, greyer on the back; with greyish-brown throat and chest, but with similar white spots at the sides of the breast; the flanks lighter, tinged with crimson and more numerous spotted than in the male; the breast and abdomen buff whitish.

Mr. Gould says:—"This species is an inhabitant of the moist grassy meadows, particularly where the *Pandanus* (Screw Pine) is abundant. It is generally found feeding among grass, and when disturbed invariably takes to those trees. From July to November it is observed in large flocks, sometimes of several hundreds; but although great numbers were shot during this period, not more than three



SYDNEY WAXBILL. ♂.

(*Aegintha temporalis*.)

AUSTRALIAN FIRE-FINCH. ♂.

(*Neochmia phaeton*.)

or four were obtained in rich plumage. About the latter part of November they were either in pairs or in small companies, not exceeding six in number: the males decorated with their rich and spotted dress. The food consists of grass and other small seeds."

The following is from the pen of Mr. A. J. North:—"The eggs * * were taken by Mr. J. Rainbird, in 1864, from some of the nests at that time common on extensive grass-lands near Port Denison. The nest is like all others of the family, a flask-shaped structure of grasses, with a long narrow entrance, placed on its side in any convenient place, either in *Pandanus* trees or adjacent shrubs, or among the stronger of the grass stems. The eggs, four or five for a sitting, are small in comparison with the size of the birds."

"Mr. J. O. Boyd informs me that a pair of these birds built their nest on the wall-plate, in one of the corners of the verandah of his house, on the Herbert River, Queensland, utilizing the iron as a shelter to the nest. In his opinion they were probably induced to do this by some captive compatriots placed there, and the canary seed they picked up near their cage."

Dr. Russ calls this the "Australian Amaranth"; he says:—"If the rays of the evening or morning sun strike through the window into the bird-room and gild this Ornamental Finch, it indeed deserves the name of Sun-Astrild in the fullest sense of the word. A male in my bird-room was sociable, yet at times spiteful towards small birds, especially defenceless young ones. With hens of allied species it would not pair.

"Since then it has been bred by Mr. J. Schmidt, of Hamburg.

"A pair nested in 1876, in a large breeding-cage; the young, however, died after eight days, evidently from feeding with wet green food. In the middle of July I let the Sun-Astrilds fly in the bird-room, where in truth they chased the smaller Astrilds. They then built, in a little open box, a nest of agave fibres and grass-bents, with long entrance tube, and lined with feathers. *Time of incubation* eleven to twelve days; after two to three weeks the young ones flew out. *Young plumage* dingy clear brown; breast lighter; in the reddish colouring of the croup and upper tail-feathers, recognizable as the species. In their first state of development, to avoid disturbing them, I did not examine the young ones. The old birds consumed at least twenty-five mealworms daily, which they took out of my hand. They courageously defended the nest; flew round me with fan-like outspread tails, whenever I approached it.

"In July, 1878, Herr Wiener received from J. Abrahams, of London, nineteen head.

"The females are more delicate than the males. Only if they arrive here in health, they are with care easy to naturalize; they will then pass the winter at five to six degrees, Reaum., sometimes below four degrees. A pair built in a Hartz cage a nest of leaves and thin strips of aloe-fibres, overarched, with lateral narrow entrance hole, both incubated alternately in five months and five broods, twenty-three young ones, but each time threw them out of the nest or deserted them before they were able to fly.

"Mr. C. W. Rex, of Darmstadt, in 1881, bred three young ones; nest a deep hollow in a Hartz cage.

"*Song* a comical humming with the head raised high, a zealously moved beak and fan-shaped, outspread tail, turning in a dignified manner from one side to the other, and then breaking off from this marvellous, noiseless love dance, suddenly with a loud whistle."

From Russ' description the song of this Waxbill (?) with the exception of the flute-like terminal note, would seem to be not unlike that of the common Spice-finch; therefore, very unlike that of most *Astrilds*.

I quite concur with Dr. Russ that, considering how abundant this Finch is in Australia, it is marvellous that so very few examples are imported; thus rendering the species so extravagantly dear, that only enthusiastic bird-fanciers would dream of purchasing it.*

Dr. C. S. Simpson has kindly sent me the following account of his experience of *N. phaeton*:—"The Australian Crimson Finches I have at present, were bought in November, 1891, and are still in the best of health. They seem to me to be particularly hardy little creatures, but rather apt to lose feathers and get bald if kept too cold in the winter. One, which I bought a year ago, I kept during the winter in a very cold room, without a fire, and it did not seem to feel the cold. It subsequently died from an accident.

"They are extremely fond of insect food, such as small meal-worms, and ant's eggs, and do not thrive unless they have a liberal supply of these. I have seen it stated in some book that they are 'even more delicate than the African Fire Finch': this may be so, if they are kept entirely on seed, but it is not my experience.

"I know of no small birds which equal these for spitefulness. I tried at one time to keep them in an aviary, with other small Finches

* In 1897 specimens were obtainable at a more reasonable rate; but I was not tempted to purchase them, as I had no separate flight-cage to devote to them alone.—A.G.B.

and Waxbills, and their ferocity was amazing. The cock would erect the feathers of his head and body, spread out his tail like a fan, and dart about after an unfortunate Avadavat: having secured his victim he would hold it down on the ground and worry it like a dog. If I had not removed them I think they would have killed every bird in the cage.*

"Unlike other small Waxbills and Finches, the male and female never display any affection for each other. Each spring, they have showed signs of wanting to breed, and at these times the cock sings a great deal to the hen, and drives her about the cage. They never roost together.

"The appearance of these birds you are of course familiar with: there is, however, one point which has not I think been previously noticed and this is, that when first imported the brown of the head and shoulders of the male bird has a distinct tinge of a bronze-green colour, which disappears after moulting. My Crimson Finches have never bred."

In his *Fremdländischen Stubenvögel*, Dr. Russ says that:—"This bird of the sun would have seemed to us a truly admirable being, if its beauty had been at the same time accompanied by a glorious song. As a matter of fact, however, he only gives utterance to a humming, more comical than euphonious, as an accompaniment to which he moves himself, as it were, sedately from one side to the other, holding his head high, moving the beak with the greatest zeal, his long tapering tail spread out like a fan, and then suddenly terminates this love dance with a loud flute-like cry." This is little more than a repetition in slightly different words of what he says in his "*Handbuch*."

Illustration from skin in the Natural History Museum.

* Mr. Abrahams gives them the same character.—A.G.B.

THE SYDNEY WAXBILL.

Ægitha temporalis, LATH.

HABITS Australia from Queensland, to Wide Bay District, and New South Wales. The general colouring of the upper surface is olive-green; the flight feathers with brownish grey inner webs: upper tail-coverts crimson; central tail feathers black, the remainder brown; crown of head and nape slate-grey; a broad carmine streak from the base of the beak, partly enclosing the eye and extending to above the ear-coverts; eyelid crimson above, grey below; sides of face and throat ash-grey, chin whiter; breast and abdomen smoky pearl-grey at the sides, pale brownish-buff in the centre; under wing-coverts white, tinted with brown; flight and tail feathers below smoky grey, browner at the edges. Length $4\frac{1}{2}$ inches. Beak carmine; the ridge black, so that when viewed from above the upper mandible appears to be black with carmine borders, the under surface of the lower mandible more intensely black excepting at the tip; legs pale yellowish horn-colour; iris crimson.

I wintered this hardy little Waxbill in a cold aviary, where, on several occasions, the thermometer registered twelve degrees of frost, and apparently it was none the worse for the exposure; it however, died towards autumn of the succeeding year; so that it is possible that it may have contracted a pulmonary disease. Nevertheless, I should fully expect that examples, if reared in this country, would prove to be fully capable of withstanding severe winters as easily as the little Australian Zebra-finch.

Gould observes that:—"This species of Finch is very generally spread over the gardens, and all such open pasture lands of New South Wales and South Australia, as abound in grasses and small plants, upon the seeds of which it chiefly subsists. It is particularly abundant in the neighbourhood of Sydney; even in the Botanic Gardens numbers may always be seen flitting from border to border. It is easily domesticated, and is of a lively disposition in captivity, even old birds becoming perfectly reconciled after a few days. In autumn it is gregarious, and Mr. Caley states it often assembles in

large flocks; in the spring they are mostly seen in pairs, and then build their large and conspicuous nest, which is formed of dead grass, lined with thistle down, in any low bush adapted for a site; but in none more frequently than in the beautiful *Leptospermum squarrosum*."

Mr. North writes:—"This bird is one of the commonest of the *Ploceidae* in New South Wales and Victoria; it constructs a flask-shaped nest of dried grass, etc., placed in a bush or low tree; a favourite breeding locality of this species is in the *Melaleuca* scrubs, that fringe the edges of rivers and creeks. At Heidelberg, in Victoria, I have seen upwards of fifty nests of this species, while out collecting, in a single day. Eggs five in number for a sitting, pure white.

"It was from a nest of this species, built in an acacia, opposite the entrance gates to the old Government House, at Toovak, Victoria, that I first took the egg of *Chalcites plagosus* (Bronze Cuckoo), and although I have taken it on many occasions since, it has been very rarely that I have found it in the nest of this bird. Eggs of *Æ. temporalis* may be taken in September, and all through the season to the latter end of February."

Dr. Russ says that this is one of the birds which rarely reaches us, therefore, only finds a few admirers, although it is beautiful and amiable, and exhibits other prerogatives of the Ornamental Finches.

"This Ornamental Finch also I first reared in my bird-room, and later also Mr. Linden, of Radolfzell. As soon as the pair began to breed, I noticed that in one of the two hitherto similarly coloured birds, the faint dirty ash-grey became, as it were, suffused with bluish-white.

"Several pairs lived peaceably in the bird-room, and one began to nest. Nest in the basket of a Hartz cage, of bark-fibres, thin grass stalks, horsehair and agave or aloe-fibres; formed spherically, carefully smoothed inside, and with an entrance hole at the side. Laying five to six eggs, white, flesh-tinted from transparency; Duration of incubation thirteen days, both taking turns. Nestling down bluish-grey. Young plumage dull earthy-grey, feebly tinted with olive-green; under-body dirty yellowish-grey, with grey-black tail above and below; only recognizable by the already existing soft red of the superciliary stripe and croup. The change of colour I do not know, as the young always died before it.

"More delicate than most other Australians, especially sensitive to wet cold. The young ones in my bird-room died one cold early summer night, and the hen also came to grief through catching cold. Not so lively as other Astrilds, the Thorn Astrild is quiet, silent yet

agreeable and peaceful. *Love-sport*:—The male hops around the hen with its tail held obliquely sideways, in comical jumps. Call-note melodious but monosyllabic. Arrives in the trade tolerably regularly every year, but only in small numbers."

I obtained my pair of this Waxbill, in August, 1892, for a few shillings, from a friend who imported them, and turned them into my coldest aviary; the cock bird died within about a fortnight, if I remember rightly, certainly very soon; the hen, as already stated, lived there for about a year. When grass in flower was thrown into the aviary, this pretty little bird showed itself to be inordinately selfish, driving away every other bird which approached it until it had eaten its fill. Gouldian Finches were the only birds which seemed to have the mastery over it. It would rush at a Goldfinch, Siskin, Amaduvade, Zebra or Cherry-finch with closed beak, at the same time uttering a sharp note something like "*tsing*," which never failed to frighten them away: at other times, however, it was peaceable. Early in 1897 I purchased two pairs in good condition.

Dr. Simpson bears out my view of the hardiness of this Waxbill; he writes:—"The Sydney Waxbills I have had about two years, they are very pretty and inoffensive, and I do not think they deserve the character which Wiener gives them, of being delicate. Mine have always been perfectly healthy."

"Wiener, by the bye, describes many birds as delicate, and liable to die suddenly. I have kept the Green Bulbul, Tanagers, and many coloured Parrakeet without difficulty. All of which, he says, are almost impossible to keep alive."

It is probable that Wiener took his cue from Dr. Russ, who also considers this Waxbill less robust than other Australian species; possibly when kept in a highly heated bird-room this may be the case, though my limited experience of *Æ. temporalis* did not lead me to the same conclusion, but then the conditions were utterly dissimilar. In another respect, also, my experience differed from that of Dr. Russ; I found the Sydney Waxbill extremely lively, more so than the Indian Amaduvades, and almost as active as the Cordon Bleu, though not quite. Now Dr. Russ says, in his larger work:—"Although Gould speaks of the extraordinary liveliness of the Thorn Astrild, it appeared collectively in the bird-room as a very quiet phlegmatic bird. At first, I imagined, that the above-mentioned disposition was caused by a kind of craziness due to bad treatment; subsequently, however, all which, in the course of time, I procured, exhibited the same placid manner of life. During the season of love they became altogether somewhat more lively, yet



PAINTED FINCH. ♂. ♀.
(*Emblerna picta*)

their liveliness bears no comparison with that of the Grey Astrild and others."

The bird is illustrated from skins of specimens formerly living in the author's collection.

THE PAINTED FINCH.

Emblema picta, GOULD.

THE Painted Finch is a native of Northern and Central Australia and, though seldom imported hitherto, is a very beautiful species. The general colouring of the upper surface of the male is pale brown, the flight-feathers darker; the hinder back and upper tail-coverts bright scarlet; the tail-feathers blackish, tinged with scarlet on the margins; the lores, a narrow eyebrow, the feathers below the eye and the front of the cheeks scarlet; the throat and under surface of body black, but a few feathers tipped with scarlet on the chin and front of throat; the centre of the neck and chest also scarlet; breast and abdomen spotted with white at the sides; the flanks brown; under wing-coverts yellowish, under tail-coverts black. Length $4\frac{1}{2}$ inches. Upper mandible black, tipped with scarlet, lower mandible scarlet, with a blue patch at the base.

The hen is very similar, but has no scarlet on the cheeks or throat; the latter, as well as the front of the neck, black, spotted with white; the under surface of the body browner and more plentifully spotted with white, the breast with only a tinge of scarlet. Length 4 inches.

Herr Wiener says that, in 1869, he had occasion to employ a journeyman wire-worker who, one day spoke to him of "Julian Finches." He proceeds as follows:—"They proved to be a pair of Painted Finches, and were probably the first ever brought alive to Europe. I purchased them, as a matter of course, and kept them for a little while. Again, in 1873, I heard, when in Liverpool, that a

hairdresser in one of the most elegant streets of the town had a number of foreign birds." "In the hairdresser's stock of birds I saw, to my astonishment, a pair of *Emblema picta*, which their owner was pleased to call 'Australian Mountain Diamond Sparrows.' I left Liverpool with the prize in my possession, and have wished ever since I had known then what I know now, about the best and safest treatment of rare Australian Finches."

"A few years later, in 1877, I paid one of my periodical visits to Mr. Hawkins' shop in Bear Street, Leicester Square, who showed me the bodies of some birds which had died soon after their arrival from Antwerp. Among these was the body of a young male Painted Finch. Dr. Russ received one live specimen from Hamburg * * * and heard of another which arrived at Trieste. It is thus abundantly clear that the Painted Finch does arrive sometimes."

"Should this magnificent bird ever come into the hands of an amateur, let him give millet in the ear, flowering grass, and a few mealworms."

Dr. Russ includes this species among the Astrilds; but says that its mode of life is similar to that of the Diamond Finch. He mentions having received a dead female from Mr. Wiener, in 1874, and says that he bought one four years previously in London; he proceeds:—

"Up to that time only one head had come to hand, brought with him by Mr. Bynoe, from the north-west coast of Australia, yet without information as to its life when at liberty, and as the explorer Gould was robbed of this, together with other rare birds, this species was only known by the illustration which Mrs. Gould painted. Thanks to the extension of the fancy, and of the bird-trade, several have since reached us alive; two were given by me to the Zoological Museum in Berlin. Mr. Preyer, in Trieste, possessed one in 1875, and Miss Hagenbeck sent me a Painted Astrild in 1877."

In his *Fremdländischen Stubenvögel* Dr. Russ gives no additional information respecting this species.

Illustrations from skins in the Natural History Museum.



RED-FACED FINCH. ♂.

(*Pytelia afra*.)

CRIMSON-WINGED FINCH. ♂.

(*Pytelia phoenicoptera*.)

THE RED-FACED FINCH.

Pytelia afra, GMEL.

ALSO known by the name of "Wiener's Astrild" or *Pytelia wieneri*, the name bestowed upon it by Drs. Finsch and Russ. Previously, in 1870, it had been confounded by Finsch and Hartlaub with *P. melba*; it was, later, described by Cabanis in 1877, as *P. cinereigula* and the name of *P. pyropteryx* was proposed for it by Schalow in 1884. Altogether this little bird is well-off for names. Its habitat is West Africa, from Congo to Angola and Mossamedes, across to Lake Tanganyika and the Zanzibar district of Eastern Africa.

The male above is dull orange slightly shaded with olive; the hinder part of the back and upper tail-coverts crimson; the median and greater wing-coverts externally tinted with red; flight feathers dull brown with a vermilion shade on the outer webs; central tail feathers crimson, the remainder black, crimson externally; the forehead, eyebrow, cheeks, chin and upper throat bright crimson; a grey lozenge-shaped patch enclosing the eye; crown of head, nape, sides of neck and lower throat ash-grey; remainder of body below olivaceous yellow, slightly golden towards the front of the neck; barred irregularly with white, more distinctly on the abdomen; under tail coverts somewhat dusky, barred with white; under wing-coverts whitish; edge of wing yellowish; flight feathers below dull blackish, with greyish inner edges. Length $4\frac{7}{10}$ inches. Beak crimson, the base of upper mandible brown; legs rose-pink; iris deep red.

The female is duller-coloured than the male, and has no red on the forehead, face and throat. Length $4\frac{1}{2}$ inches.

Young birds resemble the female excepting that they are whiter on the throat and have a paler and browner beak.

In 1880, Mr. W. A. Forbes gave an account of one of Wiener's specimens of this species, presented by him to the Zoological Society, in June 1879, and which was still living at that date (May 31st, 1880). A coloured illustration of the bird accompanies Mr. Forbes notes; which are rather interesting to the cabinet-naturalist than to the aviarist.

Pytelia melba (now referred to another genus) with which Messrs. Finsch and Hartlaub at first confounded *P. afra*, is said by Capt. Shelley to frequent the low Mimosa bushes, mostly in pairs. It is highly probable that *P. afra* would do the same thing; as other, far more remote, African Waxbills do.

Mr. Anderson observes, respecting *P. melba*:—"This Finch is found sparingly in Damara and Great Namaqua Land, and usually occurs in pairs; its favourite resort is low bush and old abandoned village fences, whence the Damaras call it the 'Kraal bird.' Its food consists of seed and insects."

Heuglin says:—"The variegated *Pytelia* lives in the warmer parts of North-east Africa, on the Sambar coast, in Bogos country, the low-lying regions of Habesch, on the white and blue River, in Kordofan, also in southern Nubia and northern Takah. It seems to be resident; its summer and winter dress hardly differ. It is always found singly or in pairs among clumps of trees, in thick scrub and bushes; dry sandy districts suit it better than other localities, and it leads a perfectly quiet, retiring life. We have not observed it at great elevations, and just as little on the grassy levels; although it only flies a few feet at most above the ground, it only descends to the earth for a second, does not run much here and there upon it. It has an extremely gentle disposition, is in no respect timid; moreover, its monotonous song is only occasionally heard, at the commencement of the rainy season, sounding from the bare parts of the thorn-bushes. I have been able to learn nothing respecting its nesting habits."

The preceding observations, upon an allied species, give us an inkling as to the probable behaviour of the Red-faced Finch in a wild state; but afford no clue as to its nidification. Fortunately this has been noted by Dr. G. A. Fischer, who says:—"The nest of *Pytelia cinereigula* (= *P. afra*), which I found abundantly in orange-trees in May, June and July, resembles that of *Spermestes cucullata*, consisting of the same materials; its circumference is greater by one half; with a side entrance."

Dr. Russ says that Dr. Fischer found and killed the species at Zanzibar, in four to six examples, in the vicinity of the negro huts: so far proving its similarity in habits to *P. melba*. One would have thought that Dr. Fischer, with the chance which he had of making copious and exact notes on the habits, nidification and food of a species, which he must have recognized as a rarity; would have published something more than the extremely meagre note respecting its nest which I have quoted above. To affirm that it resembles that

of *Spermestes cucullata*, without describing either in detail, is, to say the least of it, rather tantalising.

I have, however, discovered a short note on the nesting of *S. cucullata* by Dr. Reichenow, from which it appears that the nests are domed structures, very large and firmly compacted of fine grass. No mention is made of any entrance tube, such as occurs in the majority of the nests of Waxbills, and some, at least, of the Grass-finches.

In the *Fremdländischen Stubenvögel* Dr. Russ quotes from a letter received by him from the Prince of Coburg, in which the latter informs him that an example of the female of Wiener's Astrild, previously living in the Imperial Menagerie, was preserved in the Zoological Museum, under the name of *Pytelia afra*, Gmel., and he goes on to say that *P. afra* and *P. wieneri* therefore appear to be the same; as is partly made clear by the description of the former in Reichenbach's *Singvögel*. It would seem that Dr. Russ remained unconvinced by the receipt of this letter; for he followed it up with a description of the species under the name of *Ægitha wieneri*.

Illustration from skin in the Natural History Museum.

THE CRIMSON-WINGED FINCH.

Pytelia phænicoptera, SWAINS.

THIS Astrild ranges from Senegambia to the regions of the Upper Nile and Equatorial Africa.

The upper surface is vinous-brown, slightly redder on the shoulders; lower back and upper tail-coverts deep crimson; lesser wing-coverts brighter; median and greater coverts greyish-brown, with red edges; flight feathers brown, edged (with the exception of the inner secondaries) with dull red; central tail-feathers deep crimson, remaining feathers blackish with crimson outer margins; head rather greyer than the back, the throat with narrow transverse whitish lines, remainder of

under surface pale grey, barred with white, most distinctly on the abdomen; vent white; sides of body, flanks and thighs dull brown, barred with white; under tail-coverts somewhat similar; under wing-coverts and axillaries white; the edge of the wing red; flights dusky below, with greyish inner edges. Length 4½ inches; beak black; legs pale brown; iris red.

Dr. Russ says of this, which he calls the "Aurora-Astrild":—"As it is one of the most exquisite, so also again is it one of the rarest Ornamental Finches. I therefore, congratulate myself, so much the more, that I first bred even it in 1873 in my bird-room.

"Home, Central and West Africa; always only in small companies; it will therefore never be abundant in the bird-trade. Its wild life unknown. I received the first pair from Carl Hagenbeck in 1870, and years after, two head again.

"Tranquil in the bird-room; delight in open sunny spots, are peaceful. A pair sitting at mid-day by the window in the sun, represents a ravishingly beautiful picture, especially the male with his comical love sport; he hops round the female excitedly, curtsying, with the tail raised high up, until, as if dancing, they draw near to one another, both at the time calling out a monosyllabic and tolerably shrill *tsit, tsit*.

"The song, single melodious flute-sounds.

"*Nest* in little Hartz-cage in the densest bush, over-arched, but not very artistic. *Laying*:—four eggs; duration of incubation twelve days. *Young plumage* dull blackish blue-grey, transversely waved on the under surface; shoulders, margins of wings, croup and tail dull red; beak horn-grey, legs blackish. *Change of colour* gradual and slow; the red stronger, the grey of the front of the body showing up more clearly; the lower body grows brighter and the dark waved lines come up more strongly. More recently imported, occasionally, in several pairs."

Dr. C. S. Simpson writes:—"The Aurora Finch is a harmless and somewhat stolid bird. I don't know why it is called the Crimson-wing 'Waxbill': it is certainly quite different in appearance from any of the other Waxbills, being a stout bird with a short tail and black beak. I have had one, a cock, for about two years, but I have never been able to get a hen. It appears to be partially insectivorous, and is very fond of fresh ant's eggs. It is not a very interesting bird."

I purchased a pair in 1897 and am still delighted with them.* I am satisfied that they are related to the Lavender Finch, which they

* Since writing the above the hen has died, but the cock is still in excellent health.



AUSTRALIAN FIRE-TAILED FINCH .♂.♀.
(*Zonæginthus bellus*)

somewhat resemble both in colouring and actions; they are, however, much more retiring and less active than that lovely little Waxbill. The note is clear but not very varied, but this species appears to be fairly hardy, which is a great recommendation.

Respecting the habits of the Crimson-wing, in a wild state, next to nothing seems to be known; but Von Heuglin says it is a resident bird in Bongo, and occurs here and there in pairs in tall forest and scrub.

Mr. Wiener says:—"In the London Zoological Gardens the first Crimson-winged Waxbills were received in 1874. I have had them before that date more than once, and Dr. Russ had one bird of this species in 1870. Dr. Russ succeeded in breeding the Crimson-winged Waxbill, and in my aviary one pair built a nest and laid four eggs late in autumn, which nest I had, unfortunately, to destroy. Whilst Dr. Russ found his *Pytelia phænicoptera* building their nest in a nest-box, mine built theirs, in a rather artistic manner, in the sunniest part of their summer aviary in a bush. Cold weather coming on, I was obliged to shut the birds into their winter quarters and to separate them from their pretty little nest and four pure white eggs."

No additional information of importance is given in Dr. Russ' larger book on Foreign Cage-birds.

Illustration from skin in the Natural History Museum.

AUSTRALIAN FIRE-TAILED FINCH.

Zonæginthus bellus, LATH.

LATHAM called this the Black-lined Grosbeak, a very misleading name: it occurs, according to Ramsay, in New South Wales; South Australia; Interior Province to Wide Bay District.

The male above is brown narrowly barred with blackish; the primaries only indistinctly barred with lighter brown on the outer

web; lower part of rump and upper tail-coverts carmine red; the central tail-feathers black, tinted near the base with crimson; the others with light brown bars on the outer webs; the black banding on the head very fine, so as almost to appear uniform; the lores, a narrow frontal band and the feathers encircling the eye black, inside which is a bare bluish zone; under surface of body silver-grey, barred with black, most finely on the throat and front of neck; abdomen and under tail-coverts black; under wing-coverts pale tawny, with faint dusky bandings; length 4 $\frac{1}{2}$ inches; beak crimson, paler at the base of the upper mandible; legs flesh-coloured; iris dark brown.

According to Gould, the sexes are alike.

The London Zoological Society purchased a pair of this species on the 24th May, 1870, and recorded them under the name of "Red-tailed Finches": * this was probably the first living pair kept in confinement in Europe; though it seems likely that so pretty a species was previously known as a cage-bird in Australia.

Herr Wiener says that he always found Fire-tailed Finches "die in the most unexpected and disappointing manner. One single bird, out of many, lived in my aviary for over a twelvemonth, but he was sent to a show on the Continent as a curiosity, and died there, as unexpectedly as many newly imported specimens had done." He continues:—

"My own experience has been unfortunately shared by Dr. Russ, by Prinz Ferdinand, of Coburg Gotha, and all other amateurs. The bird seems to require some kind of seed or food which we have yet to discover; and, without which he does not thrive in Europe as a cage-bird. I have heard that the Fire-tailed Finch is very shy, when newly caught, and for this reason is often brought over in dark cages. If this be true, it may well be that the birds which died so unaccountably may have perished through sheer fright, in consequence of the admiration of their purchasers. One of the most intelligent London dealers, who frequently imported the Fire-tailed Finches, always placed them on the top shelves of his shop, out of reach of observation, and seemed to lose comparatively few. The first specimen Dr. Russ had in his aviary was so nervous, that whenever he entered his bird-room the poor little bird flew on to his hand, and tried to hide in his coat sleeve; evidently seeking for a dark shelter. It is needless to say that the bird has never been bred in captivity."

Mr. Gould gives the following account of the species:—

* The trivial name of "Rufous-tailed Grass-finch," which I recently proposed for *Bathilda ruficauda*, thus becomes necessary, to avoid confusion.—A.G.B.

"Tasmania may be considered the principal habitat of the species, for it is universally and numerously dispersed over all parts of that island suited to its habits and economy. It also inhabits New South Wales, but is there far less abundant. I generally observed it in small communities, varying from six to a dozen in number, searching on the ground for seeds of grasses, and other small plants, which grow on the plains and open parts of the forest. It also frequents the gardens and pleasure-grounds of the settlers, with whom it is a favourite, few birds being more tame or more beautifully coloured than this little Finch; the brilliant scarlet of the rump, and base of the tail-feathers, strongly contrasting with the more sombre hue of the body. Its flight is extremely rapid and arrow-like, particularly when crossing a plain, or passing down a gully. It is a stationary species in Tasmania and probably also in New South Wales. In the former country I constantly found it breeding in communities, my attention being usually attracted by the enormous nests, which they built among the branches of shrubby trees, without the slightest attempt at concealment. They are constructed entirely of grasses and stalks of grass, dome-shaped in form, with a hole near the top for the ingress and egress of the bird. The eggs are five or six in number, rather lengthened in form, and of a beautiful flesh-white, eight and a half lines long and six and a half lines broad. It breeds from September to January, during which period two or three broods are reared. Its note is a single mournful sound, emitted while perched on the low branches of the trees in the neighbourhood of its feeding places."

Mr. North writes:—"Tasmania is the stronghold of this species, but it is also found on the Australian Continent. A nest of this species was taken at Hornaby on the 9th of November, 1866. The nest is a large structure, composed exteriorly of long pieces of coarse dried grasses, lined with others of a finer description, it has a long narrow neck, ten inches in length, by two inches and a half in width; the nest proper which is globular, measuring seven inches through external diameter; it was built in a native broom, about ten feet from the ground. Eggs five in number for a sitting, pure white, elongated in form, being nearly equal in size at both ends. The breeding season commences in September and continues until the end of December."

Dr. Russ says:—"I first received, in 1875, from Miss Hagenbeck, an Ornamental Finch, which delighted me with its soft beauty, still more by its tame unusually confiding demeanour.

"Size, entire disposition, love-dance, etc., like that of the Diamond Finch. Call-note more prolonged. This lovely species has subsequently been imported more frequently and in greater numbers by the large dealers. They appeared stronger and more sprightly than those which I first possessed, yet both with Prince Ferdinand of Saxe-Coburg-Gotha, and myself, they quickly died; whereas some pairs which J. Abrahams sold in London and Paris, got on well."

Dr. Russ evidently regards this as a Grass-finch; yet it is more generally recognized as a Waxbill, but I suspect he is right.

The question now arises—Why were Dr. Russ, Prince Ferdinand, and Mr. Wiener unable to keep this finch alive; whereas, English and French fanciers had no difficulty in doing so? It strikes me that the German bird-lover regularly keeps his birds warmer throughout the year. This treatment, which enables him, without trouble, to keep alive the more delicate American and African species, is not necessary for the Australian finches.

It is very difficult to provide a high temperature, without the accompaniment either of stuffiness or draught. To the Australian finches more than any others, fresh pure air seems to be a necessity: dry cold they seem entirely to ignore. Whilst the hardiest European finches sit huddled together for warmth, and frequently die when wintered in a cold aviary, the small Grass-finches and Waxbills of Australia behave as though it were summer; flying merrily about, singing and dancing to their mates, building nests and unfortunately attempting to breed. This is the sole drawback; for the cold clear air which appears to invigorate the birds themselves, nevertheless, hinders the deposition of lime on the surface of the eggs, and contracts the egg-passage; so that all the hen birds which attempt to breed in a cold aviary during the winter, die from egg-binding.

If I ever obtain examples of this Fire-tailed Finch, I shall not attempt to keep them through the winter in a high temperature; neither shall I risk turning such valuable birds into a cold aviary; but they shall have a cage to themselves, with a box to retire to at night, and a temperature of about fifty degrees Fahr. during the cold weather. Although it seems presumptuous to suggest such treatment to the most successful of all bird-keepers, I feel convinced, that if Dr. Russ were to try the Fire-tailed Finch again under these conditions, he would be able to keep them alive. I find that several of the regular stove plants which give trouble to the horticulturist, grow and bloom better under cool treatment.

Wiener's idea, that this bird requires some special food, of which we know nothing, seems to me fanciful.

Illustrations from skins in the Natural History Museum.

THE GRASS-FINCHES.

THESE represent a very ill-defined group, difficult to distinguish from the Waxbills on the one hand and from the Mannikins on the other. Indeed it is highly probable that two or three of the preceding species, which I have placed at the end of the Astrild group, may prove to be true Grass-finches. If this is the case, they will show themselves to belong to the present section by standing erect to sing, with elongated neck, depressed beak widely open, but emitting a ridiculous humming or sibilant song; their actions, as compared with typical Waxbills, will also be heavier or more clumsy. A very rare bird *Bathilda ruficauda*, which Mr. Gould regarded as a typical Astrild, was imported by Mr. Abrahams in 1893: only two pairs were received, I believe. I had the pleasure of seeing this bird, and hearing it sing at Mr. Abrahams' house, and I at once discovered that Dr. Sharpe had correctly located it, in his catalogue, next to *Poephila*: it is undoubtedly a Grass-finch, with the general coloration of a Waxbill.*

As regards the Mannikins; they are merely heavy-billed Grass-finches, with which they are connected by the Silver-bills, a little group combining characteristics of the three types—Astrilds, Grass-finches and Mannikins; but, to my mind, better placed between the two latter sections than elsewhere.

The Grass-finches nest readily in captivity, building large spherical nests of hay, with an opening in front. Some of the species are easy to breed; but several of the more beautiful Australian forms are particularly liable to die from egg-binding; whilst others are extremely

* In March, 1895, a few were imported by a friend, from whom I purchased a lovely pair, but at a much higher price than I usually care to give for these tiny Finches: the female plucked the male bare, and at the end of a month he died: she survived for about six months and then died in her nest.—A.G.B.

aggressive and quarrelsome during the nesting-season; therefore, can only be safely kept in pairs, and bred in spacious cages.

THE PARROT FINCH.

Erythrura psittacea, GMEL.

A LOVELY little bird and an inhabitant of New Caledonia. Coming from this remote locality, it naturally commands so high a price, that it is only within the reach of fairly well-to-do amateurs. Whether it will ever be imported in sufficient numbers to enable the less wealthy purchaser to add it to his collection, seems doubtful. The adult male above is bright grass green, including the upper wing-coverts and inner secondaries; the remaining flight feathers are dull brown, with greenish edges, those of the primaries being yellower; the hinder back, upper tail coverts, forehead, eyebrow, sides of face, ear-coverts, throat and front of neck carmine red; remainder of body below grass-green; tail feathers blackish, with dull crimson margins; under wing coverts pale yellow; flights below dusky, with yellowish along the inner webs. Length $4\frac{1}{10}$ inches. Beak brownish black, feet smoky brown; iris dark brown. Sexes almost alike.

Dr. Russ says:—"Wiener, in 1877, came into possession of three examples, which soon made themselves at home in a large flight-cage, and appeared sprightly and sociable, more agile and graceful than the allied species (The Pin-tailed Nonpareil). They also soon built a nest; *Laying*, four eggs; incubated and fledged four young. *Nest* in a high-hanging Hartz cage with entrance hole, of aloe fibres, with deep overarched cup. Several broods followed in succession. *Young plumage* pale greenish-brown, without red colouring on the head and breast; only faint red at the base of the beak; beak yellow, feet bright yellowish grey. At the age of about three months; scarlet-red dots on the head, throat and breast, which became more distinct from week to week. Mr. Wiener sent a young one of the first brood to the



PARROT FINCH. ♂.

(*Erythrura psittacea*)

PIN-TAILED NONPAREIL. ♂. ♀.

(*Erythrura prasina*.)

exhibition of the "Ornis" Society of Berlin in 1877.* Prince Ferdinand, of Saxe-Coburg-Gotha, informed me that he had already seen a pair in 1873, belonging to Monsieur Geoffrey St. Hilaire, of Paris. He purchased two pairs from Mr. Wiener, each for 100 Marks (a little under £5). A more successful hatching has not been accomplished, and since then this species has been extremely seldom imported."

A very good pair, however, was exhibited at the Crystal Palace Show, for 1890, and either the same, or other specimens, have been shown there every year since that date. A fair number came to England, in 1897, and I was offered a pair in splendid condition, but the price was still too high to tempt me, my experience with the Rufous-tailed Grass-finch having somewhat daunted me.

In the first edition of Cassell's *Cage Birds*, Wiener says:—"The only record of a live Parrot Finch, in any European Zoological Garden is, that in 1873, one specimen was seen in the garden of the Paris Acclimatization Society. My Parrot Finches were always perfectly amiable towards other birds, and nested within a few feet of the Double-banded Finches, without either interfering with the domestic arrangements of the other. At first they were rather shy, and left their nest whenever anyone came near, but latterly they have become used to visitors. My success in breeding this rare and valuable Finch, is probably due to the birds being placed in an aviary sufficiently large to leave them comparatively undisturbed. As food, canary, French millet, and millet in the ear proved sufficient, with the usual addition of animal food in the breeding season."

In the *Gefiederte Welt* for April 21st, 1887, Lieut. Hauth says:—"Respecting my Red-headed Parrot Finches (*Spermestes psittacea*, GMEL), I can inform you that the young of the first nest have thriven excellently; they are to-day (14th April) fourteen days old. Also the young in the second nest came out four days ago, and lastly I have a laying of four eggs of the same species deposited in a third nest: as you are aware, I possess several adult pairs."

In June, of the same year, he contributes a long article to the *Gefiederte Welt* in which he gives a full, indeed almost unnecessarily prolix account of his experiences with this species. At first, I commenced to translate this account verbatim, but after wading through the first half, concluded that the facts could be stated more concisely. He mentions the fact that, whereas the "Leek-green Amandine" (Pin-tailed Nonpareil) is always extremely delicate when

* Wiener says that the three others were accidentally killed.—A.G.B.

freshly imported, both the Three-coloured and typical Parrot Finches came into his hands in an extremely good state of health. His specimens were obtained with difficulty, owing to their high price, and after he had acquired seven specimens, to his annoyance, he discovered that six of them were males; he subsequently secured a second female through the kindness of a chemist, Mr. Nagel by name.

Lieut. Hauth believes that, if one has both sexes of this species before him, they may be distinguished without difficulty. The male is somewhat larger and more brightly coloured; the red of the head and breast more extended, and that of the lower back and croup more brilliant. A specially fine male also has the red feathers of the lower back drooping, as in a fowl, on each side. In a second pair, however, he confesses that at first he was unable to distinguish the sexes by their feathering until after their moult, when, in his judgment, the hen appeared to be a little duller in all its colours and less glossy.

He then goes on to repeat, that he considers the fact of the less pronounced red of the lower back, and the non-dependent feathers in the hen, a good distinctive character; after which he gives a detailed description of the plumage.

The disposition of the species is said to be "very sprightly, vivacious, entirely harmless and peaceable," both among themselves and towards other foreigners. "It is possible that there may be individual exceptions to this rule. The pair behave somewhat indifferently towards each other, one never sees them preening one another's feathers, and very rarely sitting cuddled up together.

"Even in the bird-room, where a pair and an unmated male are flying about with other Amandines, they are placable and go quietly about their business, only occasionally the two males fly against one another, if the single one dares to make affectionate advances to the female of the other; but in a short time the superficial dispute is again set at rest. Nevertheless, I have now preferred to take away the single male; as in the end, more serious disputes might occur, and perhaps endanger the successful breeding of the pair; I believe that several true pairs would behave very well together, with the exception of the disagreements, which occur more or less between birds which are nesting.

They remain a good deal in the lower bushes, and at night seek repose sitting apart, high up towards the ceiling, in the immediate vicinity of the other pair of the same species, which is in the cage; in the daytime, moreover, they pay frequent visits to the latter, and exchange friendly communications.

With their near relatives, the three-coloured Parrot Amandines, also flying at large, they live on the best of terms. How closely related these three differently named species of Parrot Amandines are to one another, is best shown by the fact that a male of the Three-coloured, in a few days, contracted an intimate friendship with a female of the typical form, so that, whenever they ceased their restless hopping about, they were certain to settle down closely cuddled together.* Furthermore, a male of the Three-coloured solicited a female of the Leek-green with ardent love antics, directly I experimentally placed the latter together with him."

Lieut. Hauth says that this species has no genuine song; it consists of a tolerably loud prolonged "*tschee*" followed by a long trill "*tsiereereereer*" frequently repeated, and which, he thinks, sounds rather pretty, though not unlike the whirring sound made by winding up a watch. These sounds, as a rule, are only rarely heard, but one male in his possession he describes as repeating the sing-song, almost *ad nauseam*, the whole day through, and thereby giving itself an inflamed throat. Both sexes have a call-note, a tolerably sharp *tseet*, often used, but especially when the birds are anxious or anything specially attracts their attention. Finally both sexes at breeding time, when within the nest, utter a somewhat rough sound "*erre erre*."

After making sure that he had two genuine pairs, Lieut. Hauth placed a single pair in a roomy cage, which he had previously furnished with two Hartz-cages and plenty of building material. After a few days the cock-bird began to build, carrying in first bast-fibre until the cage was half full, then cocoa and agave fibres, and lastly a quantity of cow-hair and pig's-bristles. Most of the work was done by the male, the female occasionally taking in a stalk; she, however, busied herself with the lining, the male bird sharing her labours even in this respect.

When completed, the nest was spherical with partly covered small entrance: it was rarely made use of at night, but both sat in the entrance with their red heads visible.

Thus, in the course of a month, several nests were built, destroyed and restored; but, either because it was winter, or because the birds were too young, they did not produce eggs. At last, towards the beginning of spring the birds became excited, built eagerly, but without completing their nest, therefore Lieut. Hauth shifted them from the wired cage, in which he had them, into a large box-cage, which

* This strikes me as a curious contradiction of his previous assertion that they very rarely sit cuddled together.—A.G.B.

stood high up in a corner, and was provided with only one Hartz-cage. Immediately they set to work, and in five days completed a nest, paired, and on the 19th March, four large smooth white eggs, without gloss, were discovered in the nest. The same day the hen began to incubate; the cock-bird relieving her for a short time during the day. On the 1st April, or after thirteen days, the first egg was hatched, two more the following day, the fourth egg was addled. Both parents fed the young diligently, on finely chopped hard-boiled egg (yolk and white together), scalded and strained ants' cocoons, Potsdam biscuit as well as white millet, canary,* shelled oats and rice in the husk.

On the twenty-second day, the young birds left the nest, and did not even return to it to pass the night. Lieut. Hauth here expresses his belief that if, through a scare, the young leave the nest after nineteen days, they return to it at night for the sake of warmth; but not when fully fledged.

The chirping of the young when being fed, is said to be unlike that of other Amandines, and to resemble more nearly that of the Cuba-finch, or some of our native Finches.

THE PIN-TAILED NONPAREIL.

Erythrura prasina, SPARRM.

INHABITS Southern Tenasserim, through the Malayan Peninsular to Sumatra, Java and Borneo. It is occasionally imported in some numbers; but unfortunately many examples arrive in a weak and unhealthy condition, and, in spite of every care, quickly die.

In colouring, this bird somewhat resembles the American Nonpareil

* The word is "Spitzsat," the meaning of which I have been unable to discover in any dictionary, to which I have access, and which no German, to whom I have applied, has been able to translate. One friend, however, eventually discovered that it meant canary-seed; the word should be written Spitzsaat, which means, literally, pointed cereal.—A.G.B.

Bunting, and on account of this similarity in the disposition of its colours, has also been called a "Nonpareil."

The adult male has the greater part of the upper surface, including the wing-coverts and inner secondaries bright sap-green; the upper tail-coverts vermilion, pale olive at the base of the feathers; central tail feathers dull crimson, washed with vermilion at the edges, and with black shafts continued for some distance beyond the webs; remaining feathers smoky-brown; flight-feathers, excepting the inner secondaries blackish, edged with green; forehead, ear-coverts, cheeks, chin, throat and fore chest dull cobalt-blue, gradually changing on the breast, through bronze-green and golden bronze into bright rosy scarlet, which colour occupies the whole central part of the lower body; lores and feathers at base of beak smoky-black; remainder of under surface golden brown, paler on under tail-coverts; flight feathers below slaty-grey; tail-feathers ashy-grey. Length $5\frac{1}{2}$ inches. Beak black, legs flesh-coloured; iris brown.

The hen chiefly differs in its duller hues, in the absence of the blue colouring (excepting in old examples, in which it is indicated) and of the rosy scarlet on the under surface of the body; the two central tail feathers are also shorter; but lengthen somewhat with age.

Dr. Russ thus speaks of this species:—"Very beautiful; therefore it is the more to be deplored, that it is still always very rare in the trade. I saw the first two, in 1868, at old Bewig's, in Berlin, who had received them from Lintz, of Hamburg. Later, one was sometimes able to obtain the species from the Zoological Garden, of Cologne, on the Rhine; now it is occasionally imported by the large dealers; Abrahams, of London, once received as many as forty pairs. Lately brought into the market by Bosz, of Cologne, in considerable numbers, in faultless vigorous pairs."

"Call-note a shrill *tsit*; song almost inaudible, with violent movement of the throat and beak, frequently, however, also a marvellous short chirping. Love-sport very comical. Female utters a fine mouse-like squeaking. Satisfactorily bred, first by Bargheer, of Basle, in 1882. *Nest* with wide cavity, narrow entrance hole and thick in the walls. *Brood* variable. *Young plumage*: Blue-green; flights soft dark-brown; abdomen dull ash-grey; breast somewhat darker with olive-green shading; upper tail-coverts red-brown; upper mandible shining black; lower mandible golden yellow (became coloured black within three weeks after flight); the tail feathers, which were at first short and symmetrically truncated, grew to their full length in about eight days after flight. Innocent and peaceable. Whereas, it was formerly

believed that this species would not live in confinement, Mr. Wiener had a pair nine years. Lieut. Hauth, who in the course of time was in possession of sixteen head, and in 1886, reared them with success, has stated, it has a difficulty in bearing the double yearly moult; nevertheless, the male of the breeding pair, mentioned by Mr. Bargheer, moulted well for five years. Altogether more easy to keep than several allied species, it needs, however, in addition to millet and canary-seed, raw unhusked rice."

A pair of this beautiful little bird was given to me, about the year 1889, by the Hon. Walter de Rothschild. I turned them into my small-finch aviary in the bird-room, and supplied them with paddy rice, spray-millet, grass in the ear, grass-seed, and egg-food, in addition to the white millet and canary, previously given regularly to the inhabitants of that aviary; there was also, in one corner, a large patch of fresh turf for them to pick over: but within about three weeks both were dead; the liver and spleen being affected with tubercle and the bowels inflamed. They were, therefore, diseased when I received them, and no amount of care would have been at all likely to restore them to health. When we look at the condition in which some of the newly imported delicate Finches are kept, by many of the smaller dealers, it is no marvel that they not only become diseased, but communicate maladies to one another. If these men, instead of leaving accumulations of filth in the cages, and even flinging the seed upon the top of the same, would only take a lesson from Mr. Abrahams, and keep their birds clean, they would find that they would not only lose far fewer birds, but (and this they would consider vastly more important) far fewer patrons.

I purchased a pair of Pin-tailed Nonpareils on February 19th, 1897; and, on the 20th, turned them into one of my flight-cages. At first they were very wild, but before night had settled quietly on the perch as far as possible from the front. For several months the hen was too weak to reach the perch, excepting by running up the wire, then she seemed to get all right, but in August she again became feeble, and on the 27th of that month I found her dead; the cock is still in grand condition as I go to press (April 1898).

Mr. Davison says:—"I first met with this lovely species at the village of Bopyin, where I found it associating with flocks of *Munia acuticaudata*, and feeding in the rice-fields; they were very shy, and on being fired at, immediately retreated to the dense bamboo jungle surrounding the fields. Their note is very similar to that of *Munias*, and is uttered both when seated and flying; they have also a soft

twittering note, which they continually utter when roosting. At Malewoon, and along the banks of the Pakchan, I again observed it. The bird is only a seasonal visitant coming in towards the end of November, and departing before the end of January, as soon as the rice crops have been all harvested. The Siamese capture the birds by placing limed twigs about the rice, but the birds do not thrive in confinement."

Wiener says:—"In former times the Pin-tail Nonpareil arrived much more frequently, and generally *viá* Holland, but as the birds mostly died after a few weeks, they acquired a bad reputation, became difficult of sale, and were rarely imported. In the very earliest days of my keeping foreign birds, I purchased a Pin-tail Nonpareil, and it died after a few weeks. Regretting the loss of the handsome bird, I consulted one of the most celebrated authorities on the subject of foreign birds, and received the unsatisfactory reply that the bird 'never lived in confinement.' Not satisfied with this negative information, I set myself the task of discovering *why* this bird should not live, and completely succeeded. It was easy to find out that the Pin-tail Nonpareil lived chiefly on rice in his native Java. Cleaned table-rice the birds do not care for; but rice with the husk on, the so-called paddy-rice, was accepted by them as their natural food, and on that, with a little canary and millet seed the Pin-tail Nonpareils, which were supposed never to live long, endured in my aviary for six or seven years in perfect health and unimpaired beauty of plumage."

That paddy-rice is good for these, and all birds that feed upon it naturally, cannot be doubted; but, unless a bird is received in good health, its natural food will not save its life. In my opinion, the death of these, and many other imported birds, must be attributed principally to the crowded and unhealthy state of the cages in which they are brought to Europe, and subsequent neglect when they arrive. It is easy to discover (to use Wiener's own words) that many of the Mannikins feed chiefly on rice in their native country; nevertheless, they will live for many years in perfect health without a grain of it; on the other hand, my Pin-tails which had plenty of it, died quite as quickly as Wiener's first example which had none. My advice is, therefore, give to this and to all birds, as far as possible, the food to which they have been accustomed; and, should they die, open your birds and discover the real cause of death that way. As a rule birds are fairly accommodating in the matter of food, but they object to defective sanitary arrangements. The pair I purchased, in 1897, never had a grain of rice; for, although I sought far and wide, none was to

be obtained in London, I, however, gave them oats, which appear not only to have answered the purpose, but to have suited the birds much better. I now use oats for all the rice-eating birds, and they thrive splendidly upon this food.

Illustration from a skin of a specimen formerly living in the author's collection.

THE GOULDIAN FINCH.

Poephila mirabilis, HOMBR. ET JACQ.

[T is now clearly proved that the Red-headed and Black-headed forms are only different varieties or plumages of the same species. Consequently the name *Gouldia*, originally given to the hen of the Black-headed variety, sinks as a synonym. As, however, the trivial name of Gouldian Finch was in use before Dr. Sclater applied that of Wondrous Finch to the typical form; as also, it is the title by which bird lovers have learned to know it, it seems better to retain it for the species in its entirety. The Gouldian Finch is an inhabitant of Northern and North Western Australia, and was figured, under the two best known forms, by Hombron and Jacquinot in the *Atlas to the Voy. Pole Sud.* pl. 22, figs 122. A third, Yellow-headed form, has since been called *Poephila armitiana* by Dr. E. P. Ramsay, who says it "may be looked upon as the golden or Yellow-headed phase of *P. mirabilis*."

The cock Gouldian Finch, in breeding plumage, has the head to beyond the middle, the face and cheeks, carmine-red bordered behind by black, or (*P. gouldia*) entirely velvety black, or again (*P. armitiana*) with the red replaced by golden yellow; the chin and centre of throat occupied by a regular velvet-black patch edged with shining cobalt blue, or peacock green; back of crown at first shining cobalt blue, shading into peacock green, which passes into golden green on the neck; the neck, back and upper wing-coverts, golden green; the flight-



GOULDIAN FINCH. ♂. ♂. ♀.
(*Poephila mirabilis* & var. *gouldiæ*.)

feathers blackish grey, with pale and partly greenish edges to the outer webs; the lower back and upper tail-coverts peacock green, shading into cobalt blue and with ashy tips to the feathers; the two central tail-feathers black, elongated and tapering to a fine point (and probably lengthening with age); remaining feathers blackish with pale tips; breast and fore-chest completely covered by a broad belt of intense violet ultramarine, or pansy blue (fading after death to mauve); hind chest and abdomen bright golden or saffron yellow, under tail-coverts white; lateral tail feathers ashy grey, central feathers blackish. Length 4.5 inches. Beak flesh-pink, tinted and tipped with rosy carmine; legs flesh-pink; iris dark brown.

The female is very different, altogether duller; the edging of the crown and gorget pale green; the carmine, when present, represented by a much restricted patch; the neck, back and upper wing-coverts much more olive in tint; the lower back and upper tail-coverts pale emerald green, scarcely paler at the tips of the feathers, the central tail feathers much shorter; the breast band rosy lilac, the hind chest and abdomen pale yellow, excepting at the sides, and fading into white on the vent. Length about $4\frac{1}{4}$ inches. Beak less pure in colour.

There is not the slightest doubt that the typical female has been described as the young plumage of this bird, whilst two males have been described as sexes. Thus the zeal of bird-lovers has cleared up a rather important point.

The example figured by Gould, as the male of his *Amadina gouldiæ* is unquestionably a female of the Black-headed form; the colouring and the short tail at once indicate this. Mr. E. P. Ramsay, many years ago, came to the conclusion that it was the female of *P. mirabilis*, and in the *Proceedings of the Zoological Society* for 1877, he writes:—"One female sent confirms the fact of *P. gouldiæ* being the female of *P. mirabilis*. Mr. Armit found them breeding. The male bird had, he states, the face carmine red."

That the Black and Red-faced forms pair, and breed together in confinement, is clearly proved; but it is now also known that both sexes occur in both varieties, and the cause of the difference was, until recently, not satisfactorily cleared up. On the one hand, Mr. Arthur Thompson, of the London Zoological Gardens, (Sept. 1893), informed me that a pair of Black-faced Gouldians belonging to the Society had moulted into Red-faced birds; which seemed clearly to indicate that the increase of the brilliance in plumage was a sign of advanced age; then, on the other hand, Mr. Abrahams wrote to me:—

"I have had hundreds upon hundreds of these birds through my hands, in all stages of their growth, and in the whole course of my experience I have never known a change of colour to take place in the face, either from black to red, or *vice versá*. * My experience has taught me that these birds assume either the red face or the black face at the *first moult*, and, I believe, I can tell with certainty, when the birds are not more than between two and three months old, whether they are going to turn out Black-heads or Red-heads. I have painted specimens in various stages of plumage, which I would be glad to show you."

Mr. Abrahams believes, however, that the two forms are varieties of one species; and Mrs. Fraser, an ardent naturalist, informed me that the Gouldian Finch is abundantly bred in aviaries by the Queenslanders, and that in Sydney she saw Red, Yellow and Black-headed Gouldians, all the produce of the same parents. It would thus seem that we have, in this case, to deal with a trimorphic species; and, that the difference of colouring in the head, is actually of no more *specific* importance than it is in members of one human family; but, of this matter, I will speak again presently.

Two cocks of the Red-faced variety, and a pair of the Black-faced form, were given to me early in 1891, by the Hon. Walter de Rothschild. Curiously enough I had purchased a pair of the form *P. gouldiæ* only a day or two previously; so that I commenced with four cocks and two hens; the four first mentioned I turned into my Ornamental-Finch aviary, indoors, and the other pair into my coolest aviary, later in the year (August), in the bird-room, all three cocks incessantly persecuted the one hen, and she (instead of selecting as a husband a Black-faced bird like herself) paired up with a typical *P. mirabilis*. This bird built a nest for her, in a box with two entrance holes, constructed out of a fig-drum; but, unhappily, through failure to eat shell-making material, she produced unshelled eggs, the second of which killed her. I thus recorded the first of a series of failures, which, unhappily, have been shared by most of those who have attempted to breed this lovely bird.

My second pair of Black-faced birds (or strictly speaking my first acquired pair), began to build in a hollow oak stump soon after they were turned out, and completed a very nice little nest; but the result was the same as before, the hen died with a soft egg. A third hen given to me by Mr. Rothschild, to replace the loss of the first,

* By this remark, Mr. Abrahams intended that he had never known a *permanent* change to take place; indeed his next sentence partly explains this.—A.G.B.

followed suite, and two others subsequently purchased did likewise.

Early in 1892, the last cock bird died, those indoors having commenced to drop off at the approach of winter; whereas, that out in the frost survived until the spring; thus distinctly proving that fresh air is more important than warmth, even to these most delicate of Australian Finches.

In the autumn, of 1896, I purchased five males and three females of the Black-headed variety in young green and grey plumage, but just commencing to assume the adult dress. The change was not produced by a moult, for not a feather was shed, but by the growth of a new set of feathers from between the young plumage, which they thus completely concealed. All these birds seemed vigorous for the first six weeks or so; then they dropped off one by one daily until only three males remained. These acquired the full adult colouring and are still living and apparently well as I write, having been in their cage about eighteen months.

All the aviculturists with whom I have communicated, with the exception of Mr. Phillipps, have had similar experiences to my own, in their attempts to breed Gouldian Finches; but, I believe, if these *birds* could be turned loose in a large, airy, well heated saloon: lofty, and ventilated near the ceiling, they might both be easily bred and kept. A room fifteen feet by sixteen, and eleven feet six inches in height, seems to be not large enough, when other birds are associated with them, for that is the size of my bird-room; the cage in which I kept them being twelve feet in length, and seven feet six inches in width.

Mr. Gould writing of the Black-headed variety (*P. gouldiæ*) says that it "was discovered by Gilbert, on Greenhill Island, at the head of Van Diemen's gulf, where it inhabited the edges of the mangroves and thickets: when disturbed it invariably flew to the topmost branches of the loftiest gums, a habit I have not before observed in any other members of the genus. Its note is a very mournful sound added to a double twit. Those, I observed, were feeding among the high grass in small families, of from four to seven in number, and were very shy. The stomach is tolerably muscular, and the food consists of grass and other seeds."

Mr. North says of *P. mirabilis*:—"The nest of this species, like other members of the genus, is a dome-shaped structure, composed entirely of dried grasses. It is usually placed in a low tree or bush not far from the ground. Eggs white, five in number for a sitting, varying from oval to pyriform in shape." Of *P. gouldiæ* he says:—

"In its nidification this variety is precisely similar; in fact it has been lately proved that it is only a Black-headed phase of *P. mirabilis*, the females of both being very similar to the males of *P. gouldiæ*, and can only be distinguished externally by their duller colours. Eggs of the Black-headed phase are white."

"It may be interesting to know that several of the Gouldian Finches have bred in Dr. Ramsay's aviary. A pair, male and female, of the Black-headed phase hatched out on May 13th last (1888), three young ones, one of which, although having a dull coloured breast, has developed the crimson head of *P. mirabilis*; there can be no doubt whatever, that *P. gouldiæ*, the Black-headed phase and *P. armitiana*, the Yellow-headed phase, are merely varieties of *P. mirabilis* originally described by Hombron and Jacquinot in the *Voy. au Pole Sud*. Many specimens recently brought to Sydney show the various stages of plumage above mentioned, bearing out Dr. Ramsay's statement respecting the various phases of plumage exhibited in this species."

In a conversation which I had early in 1894, with Mr. Abrahams, respecting the variation of this species, I asked him how he reconciled his view of the distinctness of the varieties of this species with the statement of Mr. Thompson, Mr. Ramsay and Mrs. Fraser. He replied, that to anyone who had studied thousands of individuals it was simple enough:—The young of both Red and Black-heads are at first grey, and subsequently black-headed, but in *P. mirabilis* the black is greyer or more rusty than in *P. gouldiæ* and after the moult the red grows gradually in the face of the first, but not in the second. Then again in old cock *P. mirabilis*, after a moult, the red will occasionally disappear, showing only as a rusty black; but after a time the feathers, without another moult, will gradually regain their normal colouring. Mr. Thompson's pair, may have consisted of a young hen, which had not acquired the red face previously, and of an old cock, which temporarily had almost lost it; but Mr. Abrahams was not prepared to express any decided opinion respecting this case, without full investigation.

The production of two types from one pair of Black-heads Mr. Abrahams ascribes to a throw-back, or reversion, due to a cross in the previous generation; but the yellow form, he assured me, was only a phase of the red type and due to a weak constitution.

Now all this is extremely plausible, probable, and cannot well be disproved: it resolves itself exactly into what I have already suggested, a parallel case to the different coloured heads in a human family, which, doubtless, are due to the intercrossing of different races. If the

explanation is correct, the varieties of Gouldian Finches are about equal in value to the domesticated races of Pigeons; they are equally fertile *inter se*, and, therefore, have no claim to be called species. It, however, seems extremely probable, from the fact that the young of both forms at first develop black heads, that the Red-headed race is of comparatively recent origin, has been evolved from the black, and has a tendency to crop up as a simple variation from the black original; which, owing to the probable preference shown to the more gaudy males by the hens, would tend to increase; until, finally, the Black-headed phase would be obliterated.

As it has been supposed, by some aviculturists, that the influx of Gouldian Finches into the English bird-market, in about 1891-2, represented their first importation in any quantities; I would refer them to Dr. Russ' *Gefiederte Welt* for July 1887, where they will find Mr. Abrahams not only advertising the receipt of a consignment of these birds, but giving a full account of the change from the young green and grey plumage to the full adult dress of both *P. gouldiae* and *P. mirabilis*; of these different changes in plumage his clerk, since dead, made a number of coloured sketches, which Mr. Abrahams has shown me; these, I think, clearly prove his statement, that the variety or race is indicated at the first moult.

Altogether, about half a dozen instances have been recorded of the successful rearing of Gouldian Finches in Great Britain. The first to breed them was Mr. Reginald Phillipps, and, as I knew him to be a real lover of birds, and a careful observer, I wrote and asked him to send me, for the present work, as full an account as possible of his experiences with these lovely Finches. To this request Mr. Phillipps responded so promptly, that I am now able to add his very valuable record. He wrote, April 28th, 1894, as follows:—

“During the last few years, Gouldian Finches, both Red and Black-faced, have been very freely imported, and everybody seems to be acquainted with them; nevertheless, there are one or two points in their family life respecting which aviarists are still in a state of vexation and perplexity. And probably it is to this circumstance, as well as to the merits and beauty of the birds themselves, that the interest in them—in spite of the lapses of many disheartened ones—has been kept up in such a very marked degree.

“Some years ago, I had a pretty flock of these birds, Red and Black, but mostly the latter, flying loose in my bird-room, numbering seventeen in all. They gave no trouble; they had no ailments:—and these have always been my experiences of Gould's Finches, so

long as they have been allowed plenty of liberty and exercise. As to the caged bird, and its supposed liability to disease, others have had more opportunities of judging than I have—for a caged bird is my abomination:—and I, therefore, will leave it to these others to express their opinions of the caged bird for themselves.

“I have invariably found Gouldian Finches ready to nest and to lay, so ready indeed, that I long ago parted with mine, considering that there was not sufficiently more to learn about them to warrant me in giving up space that was so sorely needed for other feathered pets. Nevertheless, although so willing to nest, aviarists in this country have not been particularly successful in breeding Gouldians. True, a few young have been reared; but the successes have been wholly disproportionate to the number of failures. At first sight, this seems very strange. Here we have a case of the sexes being easily distinguishable, of both sexes being readily obtainable, of birds easily fed, and easily kept in health, requiring no extremes of heat, and not only willing but eager to nest; and, surely, when one has every thing ready to one’s hand like this, there ought not to be much difficulty in breeding and rearing the young, in any place where proper accommodation can be afforded. My experience has taught me that they will nest pretty nearly anywhere, and will make their nests in pretty nearly any thing, and of pretty nearly any thing, in the way of dry grass, that you may like to furnish them with. I have had them nesting on the floor of a large cage, in a tiny cage; in a covered box, and in an open box; in a tree, in—nothing! And with a handful or two of hay they will be profoundly content, if you cannot supply them with anything better. Moreover, they will nest in the midst of other birds as freely—if not so successfully—as they will when alone. I may add that, from preference, they will nest in a high position rather than a lower one.

“One of the difficulties—with others following in its train—to be faced in the breeding of these birds is the circumstance that the Gouldian Finch, coming from the south of the equator, usually wants to nest during our winter. Should you allow them to go to nest, say in an artificially heated room, the short dark days, and the London fogs (if, like me, you reside in London town), will probably prove too much for you, and your birds. If you, in your wisdom, put your foot down and say, *no*, you two shall be kept separate until the warm weather comes, and then will I put you up to nest,—lo, they, in their unwisdom, will possibly foil you, when the warm weather does come, by falling into moult. When you have, however, got safely through

these little hindrances, and when every thing seemingly is now square and plain sailing, your hen will, likely enough, once more disappoint your expectations by becoming egg-bound. And, lastly, when everything is *really* all right:—when the season is propitious and the nest is ready, when the eggs have been laid and the hen is still well, the cock bird, in his turn, out of sheer cussedness, will, as likely as not, destroy the eggs.

“But these are all difficulties that may be overcome. A little foresight, a little management, a sharp eye to detect at once when anything is going wrong, and, with birds so willing to nest, success must follow sooner or later, if, as I hinted before, you are able to provide the needful accommodation.

“So far as my own bird-room and aviary are concerned, I have not had, and have not now, any suitable place for these little birds. A succession of Hawks and Owls, Choughs and Crows, Jays and Pies, Parrots and Parrakeets, and a host of other foes to tiny creatures and their eggs, have made it impossible for me to keep them properly, almost impossible, indeed, to keep them at all. But in the spring of 1891, notwithstanding these impossibilities and disadvantages, finding that no one had so far been able to breed them, I, in a spiteful spirit of emulation—but could there be a better cause?—obtained a fresh pair of Red-faced Gouldian Finches, and put them up to nest on the 28th April of that year. The birds immediately commenced to build in a dead tree, which I had fixed in a large aviary-cage in my dining-room; there was another large aviary-cage on the opposite side of the room; and, as the doors of both were usually open, the birds had a fair amount of exercise, flying backwards and forwards. A lady aviarist, in Hampshire, had most kindly provided me with two kinds of dry grass, one rather broad and the other fine; and with these, and a few odds and ends, the Gouldians constructed a very large nest, domed, but with the aperture nearly at the top. The first egg was laid on the 5th May, the 5th and last on the 9th, when the hen commenced to sit in earnest, the cock taking her place when she came off to feed. The first young voice was heard on the 24th May; and, on the 16th June, two young birds in full feather were enticed out of the nest by their good old mother. On the following day, on examining the nest, I found another young bird and two clear eggs. The two elder became grand birds; but, not having room for them, I parted with them on the 5th September. The other was killed by some ruffian in my bird-room on the 5th November: it had not shewn any signs of falling into moult.

"It must not be supposed from the foregoing, that the nesting of these two birds, and the rearing of the young, passed over without a hitch. Amidst such unnatural surroundings, the course of events could not be expected to run altogether smoothly, especially as the parents were unseasoned, and the weather treacherous. But the chief difficulty was with the cock who, although he behaved splendidly for a time, behaved badly later on, and had eventually to be ejected from the room to prevent worse mischief—a circumstance which greatly upset the hen, who seemed strongly disposed to forsake the nest altogether.

"These particular birds, while nesting, fed on spray and white millet, and occasionally a little canary seed. Nothing else that I gave them would they touch. They fed their young by regurgitating food from their crops.

"There was one curious peculiarity, in the inner arrangements of the nest, which I must not pass over in silence. Imagine a pear with two small ends, lying on its side. This was the form of the interior, which was $6\frac{1}{2}$ inches, by $4\frac{1}{2}$ inches in greatest measurements, and some 4 or 5 inches deep. Thus was it divided into three fairly distinct compartments, one large, and two smaller ones opposite. Evidently the young birds had lived in the larger chamber, which was scrupulously clean:—the other two had been used as retiring rooms. I have examined birds' nests of many kinds, times without number; my early days were mostly spent in the woods and fields, looking after the birds, but I never before saw anything of the kind:—although probably the nest had been pressed into its peculiar shape simply by the weight of its occupants. Owing to its domed construction, and the height of the aperture above the heads of the young, it was impossible for the latter to have ejected their excreta outside; and the parents did not help them after the manner of so many birds. Before the nest was examined, I had often pondered inquiringly upon the state in which I should eventually find it. As it was, however, owing to the excellent sanitary arrangements of the house, and its general loose and airy construction—more suited to a Queensland than to a British climate,—the droppings were dry and inodorous; and the young came out as clean as pinks and as lusty as young Eagles. They were of a dull olive green colour, with horn-coloured beaks, and were fed by their mother until well able to take care of themselves.

"During the last year or two, the minds of some of us have been disturbed by statements which have been made that the Red,

Black, and Yellow-faced Gouldian Finches are all of the same variety, the different colourings being simply the colourings of the same bird at different periods of its life. I am greatly behind the times, for I have never seen a freshly imported Gouldian Finch with a yellow face, although I have seen many badly moulted specimens bearing many funny colours, or no colours at all to speak of. So far as the Reds and the Blacks are concerned, I do not myself see any reason for supposing that they are other than distinct varieties.*

"I cannot do better than close this brief account of these birds by quoting portions of a letter, with which I have been most kindly furnished, by Mr. Norman B. Roberts, of The Knowle, Sheffield, the gentleman who has had my two young Red-faced Gouldian Finches since the 5th September, 1891. Here the slow coming into colour may have been caused by the comparatively cold climate, and the want of the brilliant Queensland sun, just at the season when it was most needed. In a former communication, written in 1892, Mr. Roberts had said:—'I have them out of doors, and the average temperature for Sheffield, during the first six months of this year, has only reached the low rate of 44.71 degrees; we have, in fact, had no summer weather, with the exception of one week at the commencement of June. They have not attempted to breed since last Christmas, when I had them in the house, and they commenced to build, when of course I discouraged them.' Any way, some red did appear on their faces at the first moult, and much more at the second, which does not quite fit in with the theory that the young commence with black faces—for neither of these two young birds has ever had a wholly black face—and gradually assume the red faces as they advance in years. It must be remembered that the faces of even newly imported hens are blackish, though not black.

"The letter referred to, dated the 24th of April, 1894, runs as follows:—'. The birds are both quite well and happy, never having ailed anything since I had them. They are very great pets, and are more prized than any of our other birds. They have moulted each year, from April to June . . . they have just commenced; and I am hoping that their colors will be brighter than they have hitherto been. The first moult (May, 1892) gave them all their adult plumage, with the exception of the red on the heads; the hen's face became black with a brick red sort of tinge, and the cock's face remained the

* The suggestion was not that these differently coloured birds were of the same "variety," but of the same *species*; the other view was abandoned when the true explanation was made evident.—A.G.B.

same as it was when in his nest feathers, viz: dull greyish green, except a *few* red feathers dotted here and there, which gave him a most extraordinary appearance. The centre feathers of his tail also did not grow to their full length until the second moult last year, when both cock and hen assumed the scarlet on their faces; but the colors, all through, are not so bright, *as yet*, as an imported specimen's; and the hen's face is largely covered still with black Last August they paired, and the hen built a slovenly sort of nest in a branch of furze, which I placed in their cage, and laid five eggs during the first week of September; but the nest was, unfortunately, so badly constructed that two of the eggs fell through the bottom and were broken. She never attempted to incubate the others, so I removed them, and placed them under a canary, which had at the time her 4th nest in the season, but she forsook the eggs before the time was up, so I was not successful in hatching any young ones. I broke one of the three eggs and found it fertile They spend the winter indoors in an ordinary canary's breeding cage; but in the summer they have to themselves a large cage, made purposely for them, about 5 ft. × 4ft., which is in an outdoor bird-room, where they can get plenty of fresh air. Their food has been entirely millet and a little canary, millet sprays, and daily, when I could get it, a bunch of the flowering heads of ordinary lawn grass, of which they are particularly fond. Last year, when they seemed inclined to breed, I gave them some of the fresh eggs of the small red ant, and they seemed to enjoy them thoroughly, searching for them most diligently amongst the sand of their cage. I have had to give up most of my birds owing to want of time to look after them, but these I shall never part with.' On the 27th April, 1894, Mr. Roberts writes further:—'It occurs to me that in a wild state it is possible that the young male may get the red on his face at the first moult. In the case of the one I got from you, *some* of his feathers came that colour; and it is my opinion that the remaining feathers of the face were not moulted at all until the second year, and that, had they been changed, they would all have come of the adult colour.'

"Since writing the foregoing, I have noticed a few lines that were written by the Secretary of the United Kingdom Foreign Cage Bird Society, in 1892:—'I now have a Red-head that, two years ago, I got with some five others imported in their nest feathers, sold to me as Black-heads. Of the six, four turned out Black-heads and two Red-heads.' This statement hardly supports the theory that the Reds and the Blacks are one and the same, or, at any rate, that each



PARSON FINCH. ♂♂. ♀.
(*Poephila cincta*)

bird changes from one colour to the other; for the original supposition that all of the six birds were Blacks was almost unquestionably a mistake of the dealer, who was unable to distinguish the different varieties owing to the birds having been in their nest feathers whilst in his possession.

“The colours of the descendants of a Red-faced bird paired with a Black-faced may be expected to be erratic; but my own firm opinion is that, in a state of nature, as a rule the Reds will pair with the Reds, and the Blacks with the Blacks, and that each variety will breed true to colour.*

REGINALD PHILLIPPS.”

In 1893, I purchased a pair of supposed Black-head Gouldians: at the following moult the hen bird developed a few red feathers on the crown only, and these she retained through the succeeding moult; she died just in time to take her place upon my plate: Mr. Abrahams thinks that she was a Red-head too weak to develop her proper colouring; but to me it seems far more probable that she was a Black-head with a strain of red blood in her.

Illustrations from living examples and skins in the author's collection.

THE PARSON FINCH.

Poephila cincta, GOULD.

HABITS North-eastern and Southern Australia. It is a very beautiful but at the same time inquisitive and spiteful bird: its head is silver-grey; a blackish line from the base of the beak to the eye; the back fawn-colour, shading into vandyke brown on the wings and lower back; upper tail-coverts black, broadly tipped with white,

* This opinion, however, seems not to be borne out either by the statement of Dr. Ramsay's collector, or by the experience of those who have kept both phases together in large aviaries: personally I think it tolerably certain that, in a state of nature, the females always prefer the Red-headed males.—A.G.B.

tail black; the two central feathers pointed and terminating in a short bristle; under parts of body light rufous-brown; the chin, throat and fore-chest occupied by a large black patch; vent and under tail-coverts white; under wing-coverts pale rufous-brown; flights dull-brown below, slightly rufous along the inner edges: Length $4\frac{1}{2}$ inches; beak black, legs salmon-pink, iris reddish brown.

The hen differs from the cock in its slightly narrower head, which is rather less white in colour (the greyer tint being especially noticeable when the pair are on the ground side by side;) the black gorget on the throat and fore-chest distinctly smaller.

I have had, altogether, about nine pairs of this species. It is quite hardy, but the hens, even though they at first may lay shelled eggs, seem invariably to die in the end through egg-binding. Sometimes a fortunate aviculturist will pull off a brood or two, but the cock birds are so restless and so fond of building that they frequently disturb the sitting hens before incubation is completed; this was incessantly the case with the last pair which I purchased (in January, 1897), the hen being conducted from one breeding-site to another, a nest carefully built and one or at most two eggs deposited, when the nest was immediately pulled to pieces and carried elsewhere. Eventually the hen died egg-bound.

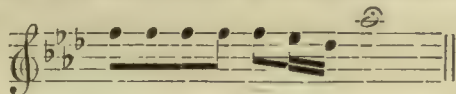
Dr. Russ calls this the "Girdle-Grass-Finch," and says of it:—"At present partly through importation, partly through breeding, a common sight in bird-rooms; first imported into Germany in 1869, by Karl Hagenbeck, and then disappeared for two years from the bird-market. Nearly allied to the Diamond-Finch and resembling it in figure and size, as also in its noticed peculiar water-drinking, &c., it is yet seen to be quite different in colouring and behaviour.

"Unlike the Diamond-Finch in its greater gracefulness and activity, it often utters a little song, with continual comical head-wagging, including a prolonged call-note. The female, likewise, wagging her head, nevertheless does not sing. Almost every pair, immediately after its arrival in the bird-room, as in the breeding-cage, begins a nest of dry bents, bast, agave fibres, little roots, cotton and other threads; spherical, somewhat more skilful than that of the Diamond bird, in a Hartz cage with lined basket-nest, or in a similar contrivance, lined with little patches of wadding and feathers; many pairs breed easily and productively, in several broods, with layings of four to six, even nine, to as much as twelve eggs; others, with the best intentions, make numerous failures in breeding. *Duration of incubation* twelve days.

"*Young plumage* duller and more weakly coloured, as if an old bird should be seen through a grey veil. *The change of colour* takes place, like that of the Zebra Finch, in the eighth to the twelfth week, in that especially the blue-grey of the head, the black of the throat and the black and white of the abdomen come out more strongly and more sharply defined from one another. Generally peaceable, and when breeding not sensitive to disturbances, but, nevertheless, causing havoc in the bird-room, by the destruction of the nests of other birds, like the Ribbon Finch; breeding is therefore best done in pairs in the breeding cage. Hybrids bred with the Japanese Bengalee and White-headed Nun."

This little Finch always reminds me of our Blue-tit in its actions; the impudent way in which it hops about, bobbing its head in a self-assertive manner and its mischievous destructiveness are essentially Tit-like. I cannot at all agree with Dr. Russ that it is generally peaceable in a bird-room; on the contrary, it always fights with males of its own species and one of my cock birds killed a hen Ribbon Finch, and would have done the same to her husband if the latter had not plucked up courage, after some days of persecution, and defended himself.

The call-note is plaintive, and, not unlike the cry of a kitten, decidedly unpleasant; but the song is rather pleasing.



Although the Parson Finch has the appearance, when not actually compared with it, of being as large as the Diamond Finch, it actually is decidedly smaller: if looked at after a journey in a travelling-cage, when the wrapper is first taken off, one sees at once that it is only slightly larger than a Zebra Finch; but when strutting about in the aviary it seems about as large again.

Mr. Gould says:—"This species is tolerably abundant on the Liverpool Plains, and the open country to the northwards towards the interior. It occurs so rarely on the sea side of the ranges, that I only once met with it during my sojourn in New South Wales. It is doubtless a native of the great basin of the interior, where, like the *P. acuticauda*, *P. personata*, and *P. leucotis*, it frequents those parts of the open plains which abound in grasses, upon the seeds of which and other plants it mostly subsists."

Mr. North observes:—"This species was formerly abundant in the neighbourhood of Rockhampton, but during my visit to those

parts in 1869-70, not a specimen could be found, the bird having been entirely exterminated by the 'trappers' for the European markets. It is thinly dispersed over the country to the north, but is replaced in the Gulf districts by its near ally *P. atripygialis*. It nests in long grass and Pandanus bushes, and lays five eggs of a bluish white, elongated in form."

Whatever it may do in a wild state, it certainly does not lay bluish-white eggs in confinement; those laid from time to time in the seed pan, by one of my hen birds, were not distinguishable from eggs of the Zebra Finch, being pure white, and similar to those of all other Grass-finches. In my opinion the bluish tint described by Mr. North was purely imaginary.

Mr. Wiener thinks "it might be somewhat risky to keep Parson Finches in an out-door aviary during winter." In this he is mistaken, which shows that proved facts are better than suppositions. If I want to know whether a species is hardy, I try the experiment of keeping it in a cold aviary throughout the winter: if it dies, I have gained a fact, which I can publish for the benefit of other bird lovers: one bird dies to save the lives of many. On the other hand, supposing that the bird is none the worse for the cold treatment, there is an interesting fact for the aviarist who has no heat available.

I believe it to be a mistake to speak of any Australian Finch as sensitive to cold: none that I have experimented with have proved to be so. Of all my Gouldian, Parson, Zebra and Cherry Finches, and Sydney Waxbills, which have been wintered in an unheated aviary open to the air: not one died from cold, though many died from laying, (or failing to lay) soft eggs, from killing one another out of jealousy, from a miserable disease resembling "staggers" in horses, and lastly, from that common and almost invariably fatal disease,—inflammation of the bowels; usually due to an incursion of mice into the aviary. In a word, the Parson Finch is utterly indifferent to cold, quite as much so as the Zebra Finch.

At the same time, if Parson Finches are to be bred; I believe from my own failures, (with the exception of the one partial success previously recorded, where two young birds actually left the nest,) that heat is a necessity; and that it is only because they were kept in a rather high temperature, that the Parson Finches belonging to Dr. Russ, Mr. Wiener and other German breeders, were so easily and abundantly bred. If kept at a winter temperature of 70 degrees Fahr., I should anticipate that none of the Australian Finches would be at all difficult to breed. That they need a large area for exercise



DIAMOND SPARROW. ♂. ♀.
(*Steganophora guttata*)

when breeding is improbable; as far as that goes, my birds were well off: a cage three feet long, by two high and two deep, ought to answer as well for the heavy Grass-finches, as for the more active Waxbills.

Illustrations from living specimens formerly, or at present, in the author's possession.

THE DIAMOND SPARROW.

Steganopleura guttata, SHAW.

LATHAM called this beautiful bird the "White-headed Finch" and gave it the name of *Fringilla leucocephala*, but Dr. Sharpe has rejected the latter, on account of the inaccuracy of the description which accompanies it. It inhabits South Australia to New South Wales, and north to the Wide Bay District. Miss Marie Fraser informed me that in Queensland it was extremely common, flying out of the bushes in small companies as one approached; nevertheless, since the importation of Gouldian Finches commenced, it seems to have been less often imported, a standing order for a pair having had no result for three years in succession. Recently a few have come over again.

The general colouring above is mouse-brown, greyer on the head; a black streak from the base of the upper mandible to the eye; the lower back and upper tail-coverts fiery carmine red; the tail intense black; under parts snow-white, with a broad belt of jet black across the chest; sides of body black, each feather marked externally with a snow-white semi-circular spot; the entire length $4\frac{3}{8}$ inches. Beak crimson, legs greyish-brown; iris red.

The hen differs, as Mr. Abrahams has pointed out, in its slightly narrower head, and in having the base of the upper mandible narrowly rose-pink. (In order to distinguish them readily, the birds must be

taken up and their heads held side by side, when there is no difficulty in discriminating between them).

I had a pair of this species, in about 1889, which built in a German canary cage in my small Finch aviary, and laid several eggs: there were, however, such constant disputes between the male and female, that they came to nothing; the hen would not let the cock enter the nest in the day time (indeed his repeated efforts to do so, eventually resulted in her killing him), but if he did not come in directly that she began to call him in the evening, she would leave her eggs and chase him about the aviary.

The call-note of these birds is particularly doleful, like that of the Parson Finch; but the love-dance of the cock bird is one of the most absurd, and, at the same time, almost incredible exhibitions which I have seen among the Ornamental Finches: he stretches his neck upwards to an extravagant height, draws in the breast and expands the chest and abdomen, stands very upright, and with depressed head, a long grass-bent in his beak: then bobs up and down on his perch, to the accompaniment of his queer song. It would be impossible, looking at the bird in repose, to imagine that he could thus alter his entire appearance until he almost resembled an oil-flask. My artist made a coloured sketch of him whilst he was thus making himself look ridiculous. (*Vide* plate).

After the death of the male bird, the female used to spend half the day in flying about restlessly, calling for him and then moping; soon she grew listless, failed to take exercise, and in the course of a month or two she died. I have heard that it is a peculiarity of some bad wives that, after they have worried their husbands into their graves, they are always lamenting their loss, and wondering what crime they can have committed to be thus left widows: thus it was with my female Diamond Sparrow.

Mr. Gould says:—"I found this species plentiful in South Australia, and in every part of New South Wales that I visited; and it was equally numerous on the Liverpool Plains, the sides of the River Mokai, Namoi, &c. It is a showy attractive species, and passes much of its time on the ground, where it procures its food, which consists of the seeds of various kinds of grasses, &c. The nest is frequently built among the large sticks, forming the under surface of the nest of the smaller species of Eagles, and that, too, during the time the Eagle is incubating, both species hatching and rearing their progeny in harmony; this I witnessed in several instances, and have taken the eggs of the Eagle and of the Finch at the same time, as

mentioned in the following extract from my journal:—"Oct. 23, Found the nest of the Spotted-sided Finch placed under and among the sticks of a Whistling Eagle's (*Haliastur? sphenurus*) nest, in which latter the old bird was then sitting. My black companion Natty ascended the tree, a high swamp oak (*Cassuarina*) on the bank of the Dartbrook, and brought down the eggs of both birds. The little Finches were sitting on the small twigs close to their rapacious, but friendly neighbour.' At other times the nest of this Finch is placed on the leafy branch of a gum or apple-tree. It is of a large size, and is constructed of grasses of various kinds, in form it is nearly spherical, with a short pendant spout on one side, through which the bird obtains access to the interior; the eggs are white, rather long in shape, and five or six in number."

"The young for the first year has the bill black, except at the base, where it is flesh-colour; the band across the breast and the flanks greyish-brown, the latter being barred indistinctly with black and greyish-white; in other respects the plumage nearly resembles the adult."

Mr. North observes:—"This beautiful bird is plentifully dispersed over New South Wales and Victoria, and is still to be found breeding close to Sydney. The nest, like all other members of the genus is composed of dried wiry grasses, &c., spherical in form with an elongated neck, used for ingress and egress, it is usually placed low down in the thick foliage of a *Syncarpia*, *Eucalyptus*, or *Angophora* in New South Wales. Eggs pure white, five or six in number for a sitting, lengthened in form, being nearly equal in size at both ends." "September and the three following months constitute the breeding season of this species."

Dr. Russ says of the Diamond Finch:—"Not so gracefully active as the little Astrilds, quieter and more restful, like most of the Amandines; unusually confiding, permits its beautiful plumage to be closely admired. A deep flute-like call-note, and a monotonous bass note as a love-song. *Courting*: a measured courtesying, head directed downwards, so that the beak almost rests upon the breast, and then the wonderful bass sounds ring out, and the long-drawn flute-sound of the female. On their arrival, from their native country, usually almost entirely bare of feathers and emaciated; they, however, soon recover under careful treatment and regain health and magnificent plumage. *Nesting contrivances*:—Little nesting baskets sewn over with linen in Hartz-cages, or other kinds of retreats to slip into when it is cold, soft grass stalks, feathers, &c., being provided. They nest in

various receptacles; built in my bird-room in Hartz-cages, hollow branches of trees, little boxes, often openly in a bush, or on a cage. They drag hay and pieces of straw, with strips of bast, into a great untidy heap, lined with feathers, cotton-wool and hair. *Laying* two to five eggs. Both sexes incubate in turn; duration twelve days. Entire brood completed in about five weeks. *Young plumage*:—Crown, nape, neck and back brown grey; croup delicate, but lively red; throat, breast, abdomen and under tail-coverts greyish-white; breast-band, sides and tail dark blackish-grey; bill, black, waxy skin bluish white. Recognizable by its figure and red croup. *Change of colour*:—on the uniformly coloured sides ash-grey dots appear; then gradually the black intensifies near the beak as far as the eye, and on the upper part of the breast; the underside becomes more purely white, the upper part of the body darker, the red stronger, the black deeper and the white spots become round; the beak first begins to get red at the base. Breeding is not easy, some pairs do not nest at all or only after years. This species also, I was first to breed; then in many bird-rooms, by C. Hendschel, at Innleitenmühle, Emil Kratz, of Glauchau, and others. Harmless and peaceable in an aviary, only when nesting a tremendous bully; without, however, destroying other birds' nests. *Remarkable peculiarity*:—It does not swallow like other Finches, after every mouthful of water, with its head raised high up, but drinks swallowing like a pigeon.”*

The following is Mr. Wiener's experience:—“In the aviary the Diamond Sparrow is fairly peaceable, but the bird lacks the agility and liveliness of the smaller Finches, is apt to become too fat. A pair will sit for hours quietly on a branch or perch, when the male will slowly erect his body, utter a long-drawn loud call, and then sink back into his former position.”

Now, this might perhaps be expected of the Diamond Finch in a small aviary, crowded with more active birds; but my experience of two pairs in bird-room and flight cage was the reverse: I found the Diamond Sparrow fully as active as my Black-headed Mannikins and Spice Finches.

Wiener continues:—“Canary and millet seed, with some millet in the ear, are really all the Spotted-sided Finches require as food; they will take a few mealworms, and some soft food, but this should only be given at breeding-time. This is one of the few Finches bred at the Zoological Gardens. Amateurs have often bred the Diamond

* I have seen Green Amaduvades do the same thing.—A.G.B.



RIBBON FINCH. ♂. ♀.
(*Amadina fasciata*.)

Sparrow, but with very variable success. One breeder will rear a great many, whilst others do not succeed at all."

I asked Mr. Arthur Thompson, of the Zoological Gardens, what was provided in the way of extra food for their finches when breeding, and he told me they simply had a fresh turf in the cage. One thing I should insist upon, as likely to keep this, and all Grass-finches, in health, and that is:—Lawn-grass seed should always be given to them and, when procurable, grass in the ear, both ripe and unripe: small spiders, too, are far preferable to mealworms, and are more eagerly eaten by the birds: when breeding, I should give them Abrahams' food.

"It has been observed" says Wiener, "that in many cases the mother is so jealous of the young brood, that if the male bird comes near the nest, he will be persecuted so vigorously that the young brood may be forgotten, or the male parent killed by the mother of the chirping family. A separation of these veritably henpecked husbands, from their family, is then the only remedy. For feeding the young Diamond Sparrows, live insect food is absolutely necessary, and fresh ants' eggs the best; in their stead mealworms, egg-food, and scalded, soaked, and strained seeds may be used."

Illustration from specimens formerly living in the author's collection, and from a living pair.

THE RIBBON FINCH.

Amadina fasciata, GMELIN.

THIS common but pretty African species is also known by the far more appropriate, though less pleasing name, of "Cut-throat Finch." The male above is dull golden-brown, the outer borders of the feathers brighter and barred with black; the head is rather greyer than the back, and the tail feathers blackish-grey, the inner webs

broadly tipped with white, the outermost feathers with the outer web white; flight feathers smoky-brown, with greyish-brown edges, inner secondaries with golden-brown tips, a blackish subterminal bar on the inner webs; feathers round the eye, front of cheeks, chin, and back of throat, white; a broad band of crimson from the ear coverts over the back of the cheeks and across the throat; remainder of under surface fawn-coloured, the chest mottled with white and barred with black, (having a very beautiful effect when the bird sings), centre of abdomen and vent white; feathers of flanks with blackish terminal bars; under tail-coverts creamy-white, black at base. Length $4\frac{3}{8}$ to $5\frac{1}{8}$ inches. Beak and legs flesh-coloured; iris brown.

The hen is rather duller coloured than the cock, shows no pure white on the cheeks, chin, or throat; the latter being whitish, speckled with black; the crimson ribbon is wanting; the under parts are dull fawn colour, with no white mottling on the chest, and the blackish bars mostly broken up into dots and dashes. Length $4\frac{7}{8}$ inches; but probably somewhat variable. It is found from Senegambia to N. E. Africa, and southwards to Masai-Land.

In the bird-room and aviary I found this bird a veritable bully and nuisance; interfering with the nesting of other birds, chasing and tormenting them, building and stealing nests, laying eggs but failing to sit on and hatch them. On the other hand, if placed in an aviary with birds stronger or bolder than itself, it is a coward. In the breeding cage it is one of the most charming, confiding, and accommodating of all the Ornamental Finches, and this is particularly the case with birds bred in such a cage.

I had been without any Cut-throat Finches for some six or seven years, possibly longer, when, in the summer of 1892, I made up my mind to try breeding them in a large cage; I, therefore, wrote to Mr. Abrahams for a pair, and turned them into a cage 34 inches high, 23 inches wide, and 25 inches from front to back; in one corner I hung up a German canary-cage, and supplied the birds with hay, moss, and cow-hair; they soon set to work and built, the hen laying five eggs, upon which the pair took turns and hatched, on the twelfth day, five young ones. I now supplied them daily with a small pot of Abrahams' Insectivorous birds' food, upon which they fed the young; when the young birds were about half grown, one was carried out dead, and now the call began to be distinctly heard "*chit, chit, chit*": when I first heard it I feared that the parents had caught cold, it so closely resembled a bird's sneeze; the birds went to nest in August, and the young, two pairs (nearly resembling their parents), left the nest about

the second week of September; two or three days later they were quite able to feed themselves, and, as I found that they disturbed their parents, I took them away.

Now occurred the most astonishing thing which I have ever noticed in breeding birds. Whereas, most birds when relieved of their full-fledged young seem to be rather pleased than otherwise, whilst the young, if plentifully supplied with seed and soft food, are utterly indifferent to the loss of their parents, I found my Ribbon Finches, both parents and young, perfectly frantic over the separation for two or three days, dashing wildly to and fro, and calling repeatedly to one another. After this, the old birds again settled down, the hen this time laying three eggs, hatching all and, when the nestlings were about a week old, again carrying out one dead. The two others, again a pair, left the nest in the first week of November. On the morning of October 12th, one of the young hens, of the first nest, commenced to lay, and in the afternoon of the same day, the other hen from the same nest deposited an egg on the sand. I now separated the pairs, giving each a nesting-box; but, owing to their getting too fat, and to the cold of the winter, I lost both these young hens from egg-binding, one of them having already deposited eight eggs in her nest. The third pair, produced from my second nest, were still living, and in excellent health, in February, 1894.

Dr. Russ says of the Ribbon Finch:—"Imported into Europe for longer than a hundred years, beloved up to the present time. Already bred by Vieillot in 1790; in Germany, by Dr. K. Bolle, in 1859. More recently so abundantly bred in bird-rooms and breeding-cages, that the fledglings at times exceeded the imported birds. *Nest* careless, in nest-boxes enclosed up to the flight passage*, or some other cavity; only of a little coarse building material, stalks, fibres, threads, feathers and other things. *Laying*:—four to seven eggs. *Duration of incubation*:—twelve days. The male when he relieves the hen always brings a stalk in with him. Nests at any time of year, many pairs five to six times, sometimes without intermission throughout the year. *Nestling-down* sparse, bluish; waxy skin-glands white, later blackish blue. *Young plumage* almost like that of the adult female, but paler, whitish-grey, not brownish; young male already with the red throat-ribbon and breast spot; beak dark-grey; feet white-grey. *Change of colour*: all the markings become more pronounced. Young female already capable of nesting after two or three months.

* Presumably Cigar-boxes; hung up perpendicularly, with the upper fourth of the lid sawn off and the other three-fourths nailed down.—A.G.B.

In the bird-room a pair of Ribbon Finches at the nesting-season make a tremendous disturbance; destroy many other nests, before they nest in one of them; it is advisable, therefore, only to breed them in a cage. Peaceable, as soon as incubation has commenced, also harmless and sociable in the aviary. They are among the best of cage-birds, yet many a pair in many broods throws the young out of the nest; I suggest depriving young pairs of their first laying; Dr. Stölker separated the male, but kept it in the same room; the female then brought up the young alone. *Song* a wonderful humming with comical curtseying movements."

In the case of my pair when nesting, only the odd young one was thrown out of the nest, so that males and females in equal numbers were reared: but whether this was designedly the case, or the young died a natural death, I could not tell. One of the young ones had been dead for some days before the parents threw it out of the nest, but, nevertheless, it is possible that they may have killed it.

Von Heuglin, writing of the Ribbon Finch as observed in North-east Africa, says:—"Observed by me during and after the rainy season up to December. In September it assembles in little flocks and crowds about in the Steppes, quite after the manner of Sparrows, particularly in the vicinity of the desert-streams, where the birds delight in collecting upon isolated trees during the mid-day hours. They also wander about in crowds in the tall grass, in hedges, gardens and among the rocks and fragmentary stones of trampled down thickets. They also like to descend to the earth and bathe in the sand."

Von Heuglin also quotes Antinori's authority for the fact that the Ribbon Finch breeds in August and the beginning of September. "Song and behaviour recalls the Field-Sparrow, but the former is not so loud and more agreeable. The call-note is a chirp."

The nearly allied Red-headed Finch (*A. erythrocephalus*) is much less frequently imported, and, therefore, commands a considerably higher price. Its general aspect is very similar to that of the Ribbon Finch and the sexes differ in much the same manners; it is somewhat larger, and the male bird has the head and upper throat crimson; in the female the head is brown, slightly tinted with red, but the throat is white with narrow transverse bars. Messrs. Sharpe and Layard give the following account of its habits:—

"Sir A. Smith found this species only in the neighbourhood of Latakoo, feeding in the native gardens and congregated together in considerable numbers. We have received it from Kuruman and Coles-

berg. Mr. Ortlepp writes—that in the latter neighbourhood it is rare, and at Priel it was common in large flocks; he found a ‘colony in a large ‘wait-a-bit’ thorn; a cart-load of grass stuck in a fork with two or three dozen apertures bored in below.’ Mr. T. C. Atmore also forwarded us specimens from Griqua Land. Mr. Ayres has procured it in the Transvaal, and Dr. Eaton has forwarded us a specimen from the neighbourhood of Bloemfontein. The late Mr. Oates shot a specimen at Fati; and Captain Shelley has in his collection a series obtained by Dr. Bradshaw in the Makalaka country. ‘This pretty bird’ writes Mr. Andersson, ‘occurs in Great Namaqua Land, and at Lake N’Gami, also in Damara Land, where, however, it is far from common, except in places, being, in fact, quite a local species. I found it congregated in large flocks on the Omaruru River at the end of October.; and it was pretty numerous at Otjimbingue, where it nested under the eaves of my house, and in the adjacent trees, in company with the South African Sparrow (*Passer arcuatus*,) which it exactly resembles in its manners and habits; and I have found the nests of these two species on the same tree, and even on the same bough, as well as side by side under my eaves. The present species forms its nest of small sticks, slender roots, &c., and lines it with wool, feathers, or soft and warm material. The young are fledged in June and July. It seeks its food upon the ground, usually in small flocks, and when disturbed, takes refuge in the nearest tree or hedge; it occasionally utters a kind of chirping twitter.’ It has been found by Senor Anchieta, in Benguela.”

Mr. Abrahams informs me that he has seen a mule between the Ribbon Finch and the Java Sparrow: as both species are prolific, there should be no difficulty in obtaining this hybrid a second time, but I tried, for over two years, and got numbers of eggs without result: I think the cross must have been with the Red-headed Finch.

Illustrations from examples living in the author’s collection.

THE ZEBRA FINCH.

Tæniopygia castanotis, GOULD.

HABITS Northern, Western, and Southern Australia, whence it is regularly and abundantly imported; it is hardy, easily bred, and very beautiful. The male has the top of the head, nape, neck, and front of back, pearl-grey, shading into brownish-grey on the hinder part of the back; croup white, black at the sides; upper tail-coverts white, regularly banded with black; lower tail feathers brown; wings brownish-grey, the flight feathers more or less edged with ashy whitish; front of face white, edged in front and at base of beak by a black line, and at the back, from below the eye, by a second slightly broader line; a large tawny patch on the cheek; chin, throat and breast silvery-grey, traversed by numerous black striæ, and bounded at the back by a black band; remainder of under surface, excepting the sides, creamy-white; the sides chestnut-red, spotted with white. Length $3\frac{5}{8}$ inches. Beak coral red; legs red; iris red.

The hen differs in the absence of the tawny patch on the cheeks; the much more buff tint of the croup and under surface of the body, the mouse-grey tint of the chin, throat, and breast, from which the black striations and band are absent, and the uniformly greyish sides to the body. Length $3\frac{3}{8}$ inches. Beak orange red.

I found no difficulty in breeding this species, which will build either in a German canary-cage, a travelling cage with the door fixed partly open, a fig-drum with entrance hole at the side, a log-nest, or a cigar-box; into any of these receptacles it will carry a quantity of hay, moss, feathers, rootlets, sticks, or in fact almost any rubbish, until it has filled up nearly the whole cavity, over-arching the little saucer-shaped depression with hay, straws, and flowering grasses. The Zebra Finch lays from four to seven eggs; but frequently loses some of these in its eagerness to dash madly out of the nest to repel intruders. In defence of its nest it is utterly devoid of fear, and, when the hen is sitting, the cock bird is usually on guard outside. No sooner does any bird, even though it be a Bullfinch, approach within a yard of the nest, than the little fellow hurls himself furiously at him, and though he may fail to scare the larger bird at the first onslaught, he repeats the attack until the intruder is driven off.



ZEBRA FINCH. ♂. ♀.
(*Tæniopygia castanotis*.)

The eggs are hatched in about eleven days, and about three weeks later the young leave the nest, but are largely dependent upon their parents for food for about another week: during this time they give the old birds little rest, pursuing them continually, throwing themselves sideways, turning their heads upside down and trumpeting noisily: the attitude of the young Zebra Finch when being fed is most grotesque. About eight weeks after leaving their nest, the young are like their parents, and are then ready to breed. Therefore, provided that all things go well, more especially with the hen birds (which sometimes die from soft eggs in cold weather) a good stock of this pretty little Finch can soon be acquired.

If permitted to do so, Zebra Finches will breed at any time in the year; in fact, my first youngster left the nest on Christmas day, in the bird-room, at a temperature of 50 degrees Fahr. It is not, however, advisable to let these birds breed incessantly, for it certainly weakens the old birds, and even the young are wanting in vigour. In 1896 I bred twenty-three specimens, but quite half of these died during the winter and succeeding summer. In 1897, also, all the young birds, excepting three which were bred, died soon after leaving the nests: in this they were not peculiar, for the same thing happened, to a less extent, with Saffron Finches and Java Sparrows. In February, 1898, four young ones left the nest, and grew up, but I believe all were hens.

As a proof of its indifference to cold, it is sufficient to mention that in the severe winter of 1890-1, a pair of this species in my outside aviary, were building in a German canary-cage, at a temperature of 15 degrees Fahr. They fortunately went no farther, or I might have lost the hen: indeed, she did not lay and hatch out until the following July: but I found them quite as lively and happy with seventeen degrees of frost, as when they had from thirty to forty degrees of heat.

The Zebra Finch is perfectly able to rear its young on seed alone, especially if plenty of grass in the ear is given; and I firmly believe that in a heated room they do better on this than when they are supplied also with soft food. I found the latter tended to make the old birds too excitable, so that they would start a fresh nest, and pluck their newly fledged young to line it, thus killing several healthy little fellows before they were strong enough to defend themselves. In a cool aviary, however, soft food is useful.

The call-note of the Zebra Finch is a monosyllabic note, like that produced by a penny wooden trumpet, and the song is a repetition of the same sound five times, the first four notes uttered rapidly, and the

fifth coming in with a decided jerk at the end; it is not unlike the bleating of a kid, and, therefore, is by no means remarkable for melody.

Dr. Russ gives the following account of the species:—"No other of the Australian Ornamental-Finches is so treasured and widely distributed as this, one of the smallest and most brightly coloured." "Its breeding in nature and propagation could be intimately studied, and yet, very few facts respecting its life, when at liberty, are published. It had already been bred by Vieillot, and even figured in its young plumage. Until a short time ago it could only be occasionally purchased; frequently, for a long time, not at all. The price at that time was 24 Marks for the pair, only when it continually showed richer breeding results, 18 Marks. Since, both flying freely in the bird-room and in little breeding-cages, it has reared numerous broods of from three to seven young ones, and at times has been bred much more numerously than it has been imported, it may count as fully acclimatized. Exactly the experiences gained by it, are applicable to the breeding of all cage-birds. Marvellous, comical activity characterizes it, but not the graceful rapidity of the smallest *Astrilds*. Confiding and bold, whether brought over from the bush or bred here. Not gregarious, they, nevertheless, live undisturbed near together, quarrels droll: they rush angrily against one another, nodding their heads, pecking with their beaks, without touching one another; neither gives way to the other, and a monotonous oft-repeated cry makes their anger known until they fly apart. In the bird-room they willingly take possession of the nests of other birds, yet not so shamefully as the Ribbon Finch. *Call-note* a monosyllabic cry, like the sound of a child's trumpet, it may often become intolerable in a dwelling-room, if it has no nesting contrivance, even though breeding is neither purposed nor permitted. The call-note repeated in three or four syllables and prolonged, is also the song of the male.* *Love-sport* comical, little trumpet notes resound on both sides. A pair eagerly commences nest-building, whenever it has an opportunity of doing so, and at any time of the year, in Hartz-cages with basket nest, little nest boxes, paste-board boxes, or openly in a bush. *Building-materials*: the coarsest things, twigs, straws, dry, and even fresh chickweed, moss, and the like. *Nest*: nothing less than artistic; the cavity lined with feathers, cotton, hair, and other materials. Many pairs eagerly build a nest, lay one or two eggs, desert the nest in order to commence

* This is not a characteristic description of the song, which might be better rendered thus: get a penny trumpet and sound four times as rapidly as you can, then give one isolated jerky note.—A.G.B.

another; in that case they are still too young for genuine breeding; they usually, in their extraordinary restlessness, commence immediately after their change of plumage, when about eight weeks old, to nest thus, and continue for a long time before they are finally able to breed productively. Until they have completed a year, the opportunity of nesting should be withheld. Then five to six broods are not unusual, a pair frequently produces thirty young without stopping. *Laying*: four to seven eggs. *Incubation*: eleven days. In the daytime the sitting is alternate, at night both consorts together. The young are fed for a considerable time, even after their flight they like to sit with their parents in the nest. *Nestling down*: yellowish-white. *Young plumage*: dirty yellowish mouse-grey; beak shining black, white near the cheek stripe; flights dark-grey with paler margins; tail blackish, banded with white; feet flesh-coloured. *The change of colour* begins in the fifth week; on the upper breast a fine black line becomes noticeable, which continually becomes more intense; on the under surface the feathering becomes brighter, passing through dirty yellow into pure white; the upper plumage constantly becomes deeper brownish, by degrees the outlines of all the markings become defined; the beak passes through dull yellow into red yellow; the change of colour usually continues to the end of the eight weeks. The young must be taken away, they disturb the old birds, and others, which are nesting. As a lodging they should have a large cage with little nest boxes, together with building material to keep them warm at night. This bold bird readily deserts its nest in the most astonishing manner, if disturbed when sitting; I, therefore, give emphatic warning. The experiment of getting the Zebra Finch to rear the eggs of other valuable birds, mostly ends successfully. Mules have been bred with the Diamond Finch, Little Silver-pheasant and others. Aberrations of colour have also been bred from the Zebra Finch, but no importance can yet be attached to these."

Gould says: "This bird appears to be almost peculiar to the interior of Australia; among other places it inhabits the large plains to the north of the Liverpool range, and is particularly abundant about Brezi and the banks of the river Mokai; but, that it sometimes occurs on the southern side of the range, is proved by my having killed five specimens on the Upper Hunter. It has also been found, though very sparingly, at Swan River, and a specimen is contained in the collection formed by Mr. Bynoe, at Port Essington. It passes much of its time on the ground, and feeds upon the seeds of various kinds of grasses. On the plains it congregates in small flocks, and

evinces a decided preference for those spots where the trees are thinly dispersed and grasses abundant."

That is all that Mr. Gould was able to tell us about the habits of this common bird in a wild state. Mr. North, however, gives the following account:—

"The Chestnut-eared Finch is found breeding in companies in the neighbourhood of Lachlan and the Darling Rivers, during September and the two following months. It constructs a flask-shaped nest of dried grass, stems, &c., and it is placed in the branches of a low tree or thick bush. Eggs five or six in number for a sitting, in colour faint bluish white; a set now before me taken by Mr. James Ramsey, at Tyndarie, in October, 1879, has one specimen with a distinct and well-defined band of blue round the centre of the egg; this is the only occasion I have ever seen any variation from the typical egg of the species."

The foregoing note gives us an explanation of the bluish tint, which on more than one occasion Mr. North has mentioned in the eggs of these Grass-finches; he describes from blown specimens in the cabinet. Many white eggs, especially if thinly shelled, show a bluish tint when emptied of their contents; it is not a colour, but merely due to the transparency of the shell. When freshly deposited in the nest, the eggs of all the Ornamental Finches are pure white; the yolk casting either a pinkish or yellowish tinge over the whole centre, owing to the transparency of the shell; a "bluish," or thin belt round the centre, would probably appear as rosy orange in the nest.

On October 18th, 1895, a nest of five Zebra Finches flew in my unheated aviary; a fortnight later, the parents built again in a furze-bush, and the hen laid three eggs; the nest, however, was too near to the wire front of the aviary, and the hen thus was so frequently disturbed that she deserted them. I have not, however, found the Zebra Finch at all liable to desert its nest, because of the latter being examined once during incubation.

Illustrations from living examples and skins in the author's collection.



BICHENO'S FINCH ♂.
(Stictoptera bichenovii)

CHERRY FINCH ♂.
(Aidemasyne modesta.)

BICHENO'S FINCH.

Stictoptera bichenovii, VIG. ET HORSE.

THIS is an inhabitant of Australia, and unfortunately is much less frequently imported than it ought to be, considering what a pretty and altogether pleasing cage-bird it is; on this account it is correspondingly expensive. Gould considered Bicheno's Finch to be an Astrild; but I have always thought it far more like a Grass-finch; therefore, as Dr. Sharpe has placed it among the latter, I have been very willing to follow his lead.

The male bird above is pale brown, with slightly darker traverse bars on the feathers; upper tail-coverts white, preceded on the croup by a black bar; greater wing-coverts and flight-feathers blackish, spotted with white; tail-feathers black; the forehead is blackish, continued by a line of black, which borders the sides of the crown and passes behind the ear-coverts downwards, and across the lower part of throat; the cheeks and throat are white; the remainder of the under surface yellowish-white; a second black stripe crosses the breast; the chest slightly greyish, light brown at the sides and faintly barred; under tail-coverts black; flight-feathers below dusky, under wing-coverts yellowish. Length $3\frac{1}{2}$ inches. Beak and legs bluish-grey; iris black.

The female is slightly duller in plumage, and has occasionally narrower bands on the chest; it is also slimmer, slightly smaller, and paler on the crown.

Mr. Gould observes:—"This beautiful little Finch inhabits the extensive plains of the interior, particularly such portions of them as are thinly intersected with low scrubby trees and bushes. My specimens were obtained in the Liverpool and Brezi Plains. As I have had occasion to remark with respect to other species, it will be impossible to determine the precise extent of its range until Australia has been more fully explored.

The Bicheno's Finch is very tame in its disposition, and is generally to be obtained on the ground, occupied in procuring the seeds of grasses, and other small plants, which form its principal food. When I visited the interior, in the month of December, it was

assembled in small flocks of from four to eight in number; these when flushed from among the grasses would perch on the neighbouring bushes, rather than fly off to any distance, and indeed, the form of its wings and tail indicate that it possesses lesser powers of flight than many of the other Finches."

Mr. North says: "The habitation of this Finch is the interior and the northern and eastern portions of Australia. Like all other members of this family it constructs a flask-shaped nest of dried grasses, which is usually placed in a low bush or long grass. Eggs five in number for a sitting; pure white."

Dr. Sharpe places the genus *Stictoptera* next to *Tæniopygia*. Dr. Russ, on the other hand, calls it "Ringel-astrild," Belted or Ringed Astrild. Although, in some respects, it approaches the Waxbills, its bluish-grey beak, style of coloration and song, are much more characteristic of the genus *Aidemosyne*; I, therefore, prefer to locate it here; on the other hand I have not followed Dr. Sharpe in placing the Amaduvade,—Zebra and Orange-cheeked Waxbills between Grass-finches and Mannikins; since this arrangement would widely dissociate one group of Waxbills from another, in opposition to the fact of their entire similarity in habits and general appearance. Such dissociations are purely scientific, and are necessary to the naturalist, who lays down for himself certain structural characters upon which to base his classification; whether his arrangement is natural or not, is a point which he cannot always consider, without adding considerably to the difficulties which already stand in his path. The scientist is often hampered, by the fact, that similarity in certain structural characteristics is, not unfrequently, produced in different genera; and if this part of the structure chances to be that upon which a classification is based, the two genera necessarily are brought into juxtaposition: it may have been possessed by some remote ancestor of both groups, and have persisted in these two isolated genera, or it may have been lost and regained, or lastly, it may have been independently acquired. The student of bird-life is hampered by no very arbitrary rules; he calls one group of active graceful birds, with more or less crimson beaks, shrill songs, and a peculiar style of dancing, "Waxbills," and he notes that the majority of these build a nest with a covered passage, or tube, leading into the entrance hole; but if he finds a Grass-finch which builds a similar nest, or has a shrill cry, he does not call it a Waxbill; neither, if a member of the latter group fails in any one point, does he immediately reject it. The fancier, indeed, bases his opinion upon the majority of living characteristics; he might perhaps

consider *Emblema*, and *Zonæginthus* aberrant Waxbills, though it is more probable that they will prove to be aberrant Grass-finches, and I should call the present species, with the species of *Aidemosyne*, aberrant Grass-finches. Unfortunately, nature has fixed no sharp dividing lines between her productions, in order to assist the systematist; she has behaved like the missionary, who has taken out an inadequate supply of clothing for his savage converts,—distributed her favours as equally as possible; nevertheless, as from a dozen complete and similar suits, hardly two men of a tribe will be similarly equipped, though many will have characters in common; so it is with the children of nature.

Dr. Russ thus writes of the Bicheno's Finch: "At the Paris World's Exhibition of 1867, I saw Ringed Astrilds for the first time, which it was asserted had been bred there; price 100 francs. Ringed Astrilds first reached the Zoological Gardens, of London, in 1861, and since then several pairs have arrived yearly; particularly in London and Hamburg; at times it may be found in all the more important bird-rooms."

In the bird-room particularly beautiful, graceful, lively and confiding, it also nests readily and with good results, if not allowed to be disturbed. It is one of the birds whose manner of breeding and development had to be discovered by breeding; the wild life is unknown.* *Nest* usually built high up near the ceiling, and by choice in that of others, Weaver-birds or Ornamental Finches; lined round with blades of grass, cotton-wool and feathers. A pair in my bird-room, however, wove a purse-shaped nest with long entrance tube, principally of agave fibre; a pair belonging to Mr. Von Beust built low down, but in a dense prickly bush.

Laying four to seven eggs; development of the brood in other respects resembling that of other Ornamental Finches. *Nestling* down pure white. *Young plumage* above dirty mouse-grey, below whitish-grey; the markings already faintly indicated. *Increase of colour* begins early, by the stronger development of the ringed-stripes and lattice spots, it is, however, slowly modified; the clear black upper and under tail-coverts, and pure white croup are first visible in the second year. Sociable, enduring, and one of the most loveable inhabitants of the bird-room. Immediately after their arrival, the older Ringed Astrilds particularly, are for the most part exceedingly tempestuous; must be carefully looked after. *Song*, according to Mr. A. Bargheer, something

* Since the publication of Mr. North's work on Australian Birds, this has ceased to be the case.—A.G.B.

approaching to the cackle of a little hen; I only heard a slight whispering, with single, clear-sounding cries.

The song, as above described, is essentially that of a Grass-finch, not of an Astrild, and strongly tends to confirm my opinion as to the natural affinities of the species. The call-note is that of *Tæniopygia*.

Wiener says:—"They have been constant inmates of my aviary for years, and lived from April to the end of October in the open air. A temperature of 50 degrees to 55 degrees sufficed in winter. But it grieved me a long time that I could not induce these birds to build; they left every kind of nest-box and nest material unnoticed. At last I obtained some very hard aloe fibre, and this seemed to please the Double-banded Finches, for they busied themselves at once with it, and soon built a large ball in the crest of an Arbor Vitæ. The ball was nearly as cleverly constructed as a Weaver-bird's nest, had a very small entrance at the side, and formed a capital nest, in which four or five pure white eggs were laid and hatched, in the usual time of thirteen to fifteen days. The young brood is not at all difficult to rear. Millet and maw seed soaked in hot water and strained, a little egg food, some soaked ants' eggs, and a few mealworms are ample."

Wiener usually recommends scalded seeds and ants' eggs for rearing the Ornamental Finches. When I first began to breed the Dwarf Finches, I frequently introduced a saucer of both into the aviary, in addition to the usual seeds, canary, white millet, millet in the ear, and grass seed. On no single occasion did any species, whether breeding or not, touch any of the scalded seed or ants' eggs, they one and all utterly ignored it, as though it had been dirt. On the other hand, when breeding, they greedily devour any kind of egg-food, chickweed, and unripe grass-seed. As for mealworms, very few of the Ornamental Finches in my bird-room ever ate them; but small spiders, flies killed and thrown on the sand, or the small white larvæ of one of the meal-moths (*Ephestia kuhniella*), they devoured eagerly. I do not believe that insect-food is essential to the successful rearing of these tiny Finches; many of them are able to bring up their young on seed alone; and, with the addition of grass in seed, and Abrahams' "Food for Insectivorous Birds," I believe that any of them may be bred in a suitable temperature. Perhaps the best means of providing a little natural insect food is, to have a good patch of fresh turf always in the aviary when breeding is going on: it is marvellous to see how a square yard of turf, placed in one corner, is instantly covered by a host of tiny foragers. The minute spiders, beetles, flies, and many other living things which abound in a growing turf, are far more natural food for

a Waxbill or a Grass-finch than the great fat-producing meal-worm, or boiled ants' pupæ, even if the birds can be persuaded to devour these dainties.

On April 2nd, 1894, I purchased from Mr. Abrahams a pair of this little Finch, and soon discovered that, like *Taniopygia*, its call-note is a weak toy-trumpet-like sound: in other respects, and especially in its confiding nature, it resembles *Aidemosyne*; its actions are not those of a Waxbill, they much more nearly resemble those of a Zebra Finch, but in their love for insect-food, Bicheno's Finches differ from that species.

I hung up a Weaver's nest in the cage, devoted to my Double-banded Finches, and they lost no time in inspecting it; and, as night approached, both of them retired to it; the cock bird hovering in front, suddenly alighted close to the opening and entering, immediately began to call the hen, which followed at once. Unfortunately, the cock bird was in a decline, from some cause, and at the end of a week I found it dead; however, on informing Mr. Abrahams of my loss, he promptly replaced it. At the end of about three weeks, a few feathers were carried into the nest; but, in other respects, the birds showed no desire to breed: nevertheless, these little things are charming enough in a good sized cage, where they have space to fly about, to keep for their own sake, without any thought of breeding. Unhappily, all prospect of breeding was completely ruined later on; for, on May 26th, I discovered clear indications that the hen bird was afflicted with that common affection of Australian Ornamental Finches, disease of the brain, she turned round and round on her perch, toppled over and recovered herself, sat with her head on one side, and when flying occasionally missed the mark at which she aimed. I know of no cure for this disease; but so far as my experience goes, it is one frequently met with in Australian Grass-finches. Mr. Abrahams, however, writes that he has known African Finches and Parrakeets to be afflicted in a similar manner.*

Mrs. Fraser tells me that she always found Bicheno's Finch a delicate bird, and by no means long-lived: she also states that, compared with many of the other small finches of Australia, the Double-banded Finch is a rare bird, never seen in large flocks, and frequently only to be met with in pairs. Both my birds died within a month or two.

Mr. Abrahams recently sent me the skin of a hybrid between this species and the Zebra Finch, a drawing and account of which I prepared

* Since writing the above a Zebra Waxbill has died from this disease.—A.G.B.

for publication in the *Feathered World*. The bird was bred in London about the year 1887, or 1888, by Mr. R. Ellis.

The illustration is taken from a living male, formerly in the author's possession, and from preserved skins.

THE CHERRY FINCH.

Aidemosyne modesta, GOULD.

HABITS Australia from the Wide Bay District to New South Wales, Victoria and South Australia: it is a charming and perfectly hardy little bird, capable of standing severe winters in an unheated aviary; but it must on no account be permitted to breed excepting at a temperature of at least 60 degrees Fahr.

The male bird above is brown, the feathers of the croup barred with white at the ends; upper tail coverts darker, and with broad terminal white spots; tail feathers blackish, the outer ones with a terminal white spot; wings brown, the flight feathers dusky, paler on the outer edges, the inner secondaries spotted at the ends with white; crown of head dark brown, shading into dull crimson in front; a black loreal spot; feathers above and behind the eye and sides of face white, ear-coverts white, barred with brown; chin and front of throat black; under surface white; the neck and sides regularly barred with brown, under wing-coverts whitish; flights ashy. Length 4 $\frac{3}{10}$ inches. Beak black; legs flesh-coloured; iris chestnut-brown; lashes blackish.

The female shows barely a trace of crimson on the forehead, has no black on the chin and throat, which are barred like the neck and sides; the under parts are also uniformly greyer in tint than in the cock bird. Length 4 $\frac{1}{2}$ inches.

In the summer, of 1892, I purchased a pair of Cherry Finches from Mr. Abrahams and turned them into my coolest aviary; about the end of the year they began to build, and constructed a very firm and artistic nest in a cypress shrub; the nest was chiefly formed

externally of hay and fibrous roots, mixed with flowering grasses, and had a small entrance hole in front; the birds sat together in this nest at night; but at twilight, when anyone entered the passage between this and my other cool aviaries, they would hurriedly leave their retreat, to return, however, as soon as they had recovered from their scare. Early in the new year, the hen became egg-bound, and had to be doctored, when she passed an unshelled egg, and recovered; but, when a hen bird once begins to lay unshelled eggs, she is apt to repeat the experiment with fatal results, and this was the case with my hen Cherry Finch.*

Mr. Gould says of this species:—"I found the plain-coloured Finch tolerably abundant on the Liverpool plains, and on the banks of the Naomi, and Gilbert mentions his having observed it on the low ranges to the northward of Moreton Bay. In its actions, habits, and economy, no remarkable differences were observed from those of the other species of the genus.

"It is usually seen in pairs, or associated in small companies, feeding either on or near the ground, the seeds of grasses and other annuals forming its chief supply of food."

"A nest found by Gilbert was of a domed form, composed of grasses, and contained five or six white eggs, about half an inch long by three-eighths broad."

Mr. North says:—"This Finch is an inhabitant of Queensland and the northern portions of New South Wales. Living well in confinement, numbers of them are trapped annually, and sent to Sydney and other markets for sale. The nest of this bird is a large dome-shaped structure, composed of dried grasses, thickly lined with feathers, and is usually placed in a low shrub or among long grass; the eggs are five in number for a sitting, pure white."

Wiener considered this species very delicate; Dr. Russ, however, says that he did not find it so: he observes, on the contrary:—"To judge by their build and their placid disposition, they (the Australian Ornamental Finches) doubtless should rank among the most vigorous cage-birds; and, nevertheless, they promptly die in extraordinary numbers—though certainly, as a rule, immediately after importation. The causes of this lamentable state of things invariably originate in

* In 1894, Mr. Abrahams generously replaced this bird; but, so far, I have not succeeded in breeding with it. In March, 1895, I purchased a second pair, and in May they built, the first egg being deposited on the 7th May. The hen was very nervous, and left the nest at the least alarm, tumbling about on the earth as if wounded, and gradually retreating from her home until about two yards away, when she hopped up into a bush and sat quite still. The eggs are very large for the size of the bird. Only two eggs were deposited. The hen mysteriously disappeared on February 19th, 1897, and the cock died during the following night.—A.G.B.

their bad treatment during transport." He then goes on to recommend, that when first received, these birds should not be immediately turned loose in the bird-room, but at first be kept in cages on a uniformly seed diet, and that no fresh ants' cocoons should be given them, but only one or two mealworms apiece. Of course, in the case of my own pair, which I obtained, as already stated, from Mr. Abrahams, it is probable that they had been subjected to somewhat the same treatment as is here recommended, consequently they were in perfectly sound health, and but for the difficulty of egg-binding, both sexes might still be alive and well, as the male bird passed three winters out in the cold, on one occasion amounting to as much as twenty-one degrees of frost. Judging, therefore, from this example alone, I should be inclined to regard the Cherry Finch as the hardiest of all the Australian Ornamental Finches: in the winter of 1894-5 I had a pair out in the cold.

It is not, however, always safe to base one's judgment on a single individual, or a pair; for, in the same aviary I kept a St. Helena Waxbill in perfect health, although its two companions, of the same species, died early after the commencement of the night frosts, whilst a Lavender Finch has lived there for fully three years, whereas all other examples have died.

Dr. Russ gives the following account of the nesting of this species:—"The extremely innocent and peaceable Cherry Astrilds living in my bird-room very soon started breeding, and, in fact, two pairs went to nest without disturbance, not far from one another. *The nest* was regularly formed in a little basket standing in a Hartz-cage, or in a dense bush; domed over with dry grass stalks and fibres, but without any particular skill. *The laying* consisted almost invariably of four proportionably large eggs. *Incubation* occupies twelve days. *The young plumage* above is uniform dull earthy grey, below dirty whitish grey, entirely without the transverse striped marking. Only after very close examination is it possible to discover delicate dark lines. The brown head-patch and the black throat-colouring are wanting. The beak is clear leaden grey. I can safely affirm that I first reared this Astrild in captivity, and hitherto I only. This, however, seems to me remarkable, since the bird is no longer rare, but may already be found in all bird-rooms."

Why Dr. Russ calls this species an Astrild I cannot imagine; unless it be that he sees a likeness between it and the Double-banded Finch: in build, indeed, it is very like that species, but its song has the almost voiceless character of the majority of the typical Grass-



INDIAN SILVER-BILL. ♂.
(*Aidemosyne malabarica*)

AFRICAN SILVER-BILL. ♂.
(*Aidemosyne cantans*.)

finches, and its manner of singing is precisely the same; the neck is elongated, the head projected rather downwards than upwards, the mouth opened widely and emitting a faint humming sound, not audible at all when other birds are singing. From the Silver-bills, which are referred to the same genus, it not only differs in song, but in its much more sedate behaviour; it has none of the lateral tail-wagging, and jerky skittishness, of the Silver-bills, but fairly earns its title of Modest Grass-finch.

Here, I think, we find a singular instance of inattention to habits in the great German breeder, in that he places the Silver-bills, with their shrill voices and Waxbill-like liveliness, among the Grass-finches and Mannikins, yet places the Cherry Finch, having the true characteristic habits of the Grass-finch, among the Waxbills, I place both in the former group, because (as already explained) voice alone, or tail-jerking alone, are not sufficient to set against similarity of structure. *Aidemosyne* is an intermediate group, tending to link the Grass-finches and Astrilds, but more nearly approaching the former than the latter. If the Silver-bills looked up to heaven to utter their shrill song, I should unhesitatingly declare that they were aberrant Waxbills; but they do nothing of the kind, therefore they must be regarded as aberrant Grass-finches: thus far Dr. Russ is correct; only, in my judgment, he ought also to have added the Cherry Finch and Bicheno's Finch to the same group. I was formerly inclined to think that *Pytelia* and allies were Grass-finches rather than Astrilds, but am now certain that they are better placed with the Waxbills.

Illustration from living examples and skins in the author's collection.

THE AFRICAN SILVER-BILL.

Aidemosyne cantans, GMEL.

THIS near relative of the Indian species is very frequently imported, and is cheap; so that, as it resembles *A. malabarica* both in general appearance and demeanour, it is a great favourite. In colouring

it differs in its barred upper surface, black upper tail-coverts, and the reddish spots on the cheeks and chin. Length $4\frac{1}{8}$ inches; the beak is greyish-blue, the upper mandible darker than the lower; legs pale red; the claws brown; iris red-brown.

The female is rather smaller than the male; but very similar in colouring. Mr. Abrahams writes that "The male Silver-bill has a broader head, thicker beak, bolder eye, and broader chest than the female, and looks a more robust bird. In trying to distinguish the sexes of a pair of this bird, it is only the first glance that enables you to appreciate the difference above stated, for if you gaze at them for a little time, so much are they alike, that you cannot tell one from the other. Another way of distinguishing the sexes is, to take one bird in each hand, and compare the first long feathers of the wings; in the male they are almost black, while the hen's are more grey."

I have, at various times, had a good many examples of this species, and have found them somewhat delicate when first turned loose in the bird-room, the hens more so than the cock birds; although they usually fall victims through egg-binding. When acclimatized, the cock birds live for many years without a day's illness, making friends with Pied Mannikins, or Sharp-tailed Finches; but more particularly the fawn and white variety of the former, with which they will readily pair. From this union, however, I never obtained anything beyond eggs.

If supplied with building materials, this Silver-bill will amuse itself incessantly, whether paired or single, in filling up cigar-boxes or other nesting contrivances, after the manner of Zebra or Parson Finches. In its quick movements and the lateral jerking of its tail, as well as in its clear and shrill song, this species resembles the Waxbills rather than the Mannikins.

One song consists of a long-drawn trill in one note, followed almost immediately by a second trill in a slightly different note; it gives one the impression of expiration followed by inspiration through a pea-whistle; it is chiefly heard when the bird is building.* Another song is somewhat aptly described, by Dr. Russ, as resembling a little running brook; and, in the case of the examples which I have purchased recently, this is the only song I have heard.

German travellers tell us, that the African Silver-bill has no decided song, but that it is represented by modest whispered babbling, and sounds resembling kissing, with little melody; and that the

* I wrote this description of it after listening to, and watching a male bird in my Ornamental Finch aviary; since then I have had other specimens which have sung a little rippling whistled song, somewhat approaching that of the Bengalee, but much clearer.—A.G.B.

members of this species breed in the nests of Weaver-birds, which they suit to their requirements by lining them thickly with feathers, hair, and wool; they lay from three to five transparently white eggs, and that their nesting-season is from August to October. Vierthaler, however, found a nest in January. It does not occur at an elevation of more than five to six thousand feet above the sea-level, and is not addicted to migration. It lives on the banks of streams, on islands, in fields of maize and cotton, on farm lands, and even by desert brooks, but never in very considerable numbers. It is sometimes seen wandering about on the ground, but more often in hedges, scrub, and dead thorn trees. It also pairs in captivity with the Indian Silver-bill.

These are all the facts that I have been able to collect respecting its wild life (the last sentence being, of course, not included), and as it has been so much less noticed by hunters and collectors, it is probable that further investigations will not only greatly extend the period of nidification of this species, but also its mode of nesting will be seen to vary; for there is no reason why one species, in India, should breed throughout the year, forming its nest in various ways; and a closely allied African species should be tied down to three or four months in the year, and be incapable of forming independently a nest of its own. Vierthaler's nest, found in January, proves conclusively that the season is not limited to the autumnal months; and, in confinement, we know that the African Silver-bill is ready to build at any time, like his Indian cousin.

Dr. Russ says:—"Dr. Karl Bolle first bred the little Silver-pheasant, and described it in detail: 'The little birds love to sit in pairs, or several closely huddled together on a branch, and the whole company is truly inseparable. If divided, they call with anxious chirping, at last in sharp and impatient sounding tones. Their short wings, indeed, do not allow them in their native country to take a long, or particularly high flight; therefore, they slip through the scrub with the agility of a mouse. On the ground they hop about with the tail directed obliquely upwards. They always require a hollow in which to pass the night, even when not nesting. The male alone is the architect of the nest; I have never seen the female bring in even a single straw; it is contented with sitting quietly in the nest, or in front of it, and accepting the homage of its industrious husband in return. This peculiarity places them, and some nearly allied Amadinas upon the highest step among the Finch-like birds; for the feeling of parental love never becomes so strong and solicitous in the sex, which at other times accustoms itself to accept matrimonial duties too readily. If the

nesting hole is large, it is filled up with a fabulous collection of rubbish. Everything answers the bird's purpose, hay, moss, cotton, linen, thread, pieces of paper, and even fresh green stuff, such as chickweed, etc. In a roomy nest-box, or a Hartz cage, as well as quite openly in the bushes, an overarched nest is built; a narrow cavity is lined only with the softest possible materials. At every loud noise the birds glide from the nest, presently to return back cautiously. *The young* at first are perfectly bare and very hateful; blackish red, with yellow waxy skin swellings. In the first six to nine days they develop slowly, afterwards ever so much more rapidly. They remain a long time naked, gradually acquire a bluish colouring, and then one might sooner take them for little loathsome Amphibia than for birds. Ants' cocoons are utterly despised as food, and also green meat. One may, therefore, regard this Ornamental Finch, as well as its relations, as exclusive seed-eaters, who never once corrupt their young ones with flesh diet. *Duration of incubation*, eleven days. On the twenty-first day the young leave the nest, and feed themselves when twenty-five days old. Every year as many as five broods follow in succession.

"*The young plumage* is almost entirely like that of the adults, only it appears duller and more faded, whilst the wavy lines of the back and wing feathers are still quite indistinguishable; the beak is shining bluish black. *The improvement in colour* commences in the second week by the development of the wavy marking and lightening of the beak. In five weeks the young bird is in full colour."

Illustration from a living male specimen in the author's collection.

THE INDIAN SILVER-BILL.

Aidemosyne malabarica, LINN.

A COMMON bird in Ceylon, India, Khelat and Afghanistan: frequently kept as a cage-bird in India, but not usually imported half so freely into this country as it deserves to be, and when sent

home sometimes confounded with the African species: during the last year or two it has come more frequently. I am inclined to think that this was one of a cage-full of birds brought home for me some years ago by my sister; but, at the time, I took no notes; therefore it is possible that I am thinking of some young Black-headed Mannikins in that collection.

The male above is light rufous brown, with slightly mottled darker head, the bases of the feathers being blackish; the croup and upper tail-coverts are white, the latter black along the outer web, the feathers of the former barred with brown at their junction with the lower back; tail feathers black, marked with ferruginous on the outer web; inner secondaries brown, with narrow terminal white fringes; remainder of flight feathers black; sides of face and under parts white, the latter slightly tinted with buff, which becomes deeper and is indistinctly barred with white at the sides: under wing-coverts and axillaries pale buff, quills dusky, buff along the inner web. Length $4\frac{3}{4}$ inches. Upper mandible leaden grey, lower mandible lilacine greyish; legs greyish flesh-coloured; iris dark brown.

The female is rather smaller than the male, but very similar in appearance. Mr. Abrahams writes:—"The males are much larger than the females, moreover, there is a distinctly yellowish tint about the cock's plumage." My friend Dr. F. Buckland, who has, he believes, had several examples of this Indian species, speaks well of its song, which he says is very pleasing and somewhat quaint. Mr. Abrahams gave me a pair about the middle of May, 1895.

In India this bird has received the names of Chorga, Sar Munia, Churchura, and Piduri. Colonel Sykes says of it:—"These birds live in small families, I have frequently found them in possession of the deserted nests of the common Weaver-bird; but their own nest is a hollow ball, made of a delicate *Agrostis*, with a lateral hole for the entrance of the birds. I took a nest in the fork of a branch of the *Mimosa arabica*, it contained ten oblong, minute, white eggs, $\frac{1}{10}$ inch long, by $\frac{2}{10}$ inch in diameter. The cry of the bird is *cheet, cheet, cheet*, uttered simultaneously by flocks in flight."

F. Buchanan Hamilton says:—"About Calcutta, this bird is frequently tamed; and a pair always being kept in the same cage, each bird has a small cord fastened round its body, and the owner holding one bird by the cord, throws up the other in the air, which always returns and sits by its companion."

Lieut. Burgess states that "These birds are often to be seen on the ground, picking up grass-seeds, and so close together that several

may be killed at a shot: they do not take long flights, but merely from bush to bush. I observed numbers of them in the leafless caper, on the banks of the river Bheema. It breeds, I conclude, twice in the year, as I have found its nest in the months of November and March. The nest in two instances was formed of the flower-stems of the silk-grass, which is abundant in the beds of streams, and lined with feathers and the silky seeds of the grass. The largest number of eggs I have found was six."

W. Theobald, junr., however, informs us that "Two pairs of this bird are frequently, if not usually, employed in the construction of one nest, and in which the two hens consecutively lay; so the same nest has sometimes twenty-five eggs in it, in different stages of incubation. Nest often clumsily and hastily made, but usually a neat domed structure of fine grass, with one opening, sometimes prolonged into a short deflected neck, partially closed by the elasticity of the spikes of grass forming it; sometimes the nest is a simple platform of grass, open at one end, but the grass ends curved over to meet at the top; usually placed in thorny bushes, often very conspicuous and close to roads. It is much to be doubted if the eggs found occasionally in October and December are hatched."

Jerdon observes:—"This little Finch is found all over the Peninsula, frequenting hedges, low trees in cultivated ground, and low bushes on the open plains, or by a river-side. It frequently enters gardens, and feeds on various kinds of seeds."

In his *Birds of India*, Jerdon gives but little additional information; he says:—"This plain coloured Munia is found throughout India, not entering the hills, nor extending to the countries towards the east, but very abundant in Sindh and the Punjaub. It also occurs in Ceylon. It frequents bushy jungles, hedgerows, thickets near cultivation, and groves of trees, often entering gardens, and is to be met with in the south and in Central India, near every village; it is more rare in Malabar and other well-wooded districts, and generally so, indeed, in forest country. Like all the others, it associates in small flocks, and feeds on grass-seeds and grains."

Oates says:—"The White-throated Munia, like the spotted one, breeds pretty well all over India, but the present species affects the most arid tracts, the latter the well-wooded and watered ones. I know of no month in which, in one place or another, its eggs may not be found. I have taken them myself in January, February, March, and April, and again in July, August, and September. Mr. Theobald obtained them also in May, October, and November. They have

certainly two broods, probably more; the great majority of nests will, everywhere I think, be found from January to March, and from July to September.

Normally, in fact nine times out of ten, they place their nests in the low, thick, thorny bushes, at heights of from one foot to five feet from the ground; but I have found them in the most out-of-the-way places—once in an old thatch, several times in a haycock in my own ground, and once in amongst some dry bushes, stuck up as supports for, and almost covered with sweet peas.

Typically the nest is large and globular, loosely put together of fine and coarse grass, the latter predominating on the outside, the former on the inside, and with more or less vegetable down as a lining. But they are sometimes only partially covered, sometimes quite open above, and all kinds of odds and ends are not unfrequently pressed into the service. I quote a few old notes of nests, made on the spot at the time of finding them. "Took a nest near Etawah on the 22nd of January, 1867. It was composed entirely of the flower-stems of the *chireyan-ki-chunne* (*Agrostis* sp.), mixed here and there with a few tiny pieces of cotton, a small flock or two of wool, one little piece of red cloth, and a few very small pieces of coarse cotton fabric. It was placed in a small bush of the *jherberi* (*Zizyphus nummularia*), about six inches from the ground. It was open, broadly saucer-like, some few of the elastic grass-stems of the sides overhanging the cavity of the nest. It contained four pure white eggs.

"A nest containing eight eggs, taken on the 26th of January, 1867, was a complete sphere of soft grass, with only a hole in the side. It was pretty thickly lined with cotton wool, and contained one or two small coloured rags. It was in a heens bush (*Capparis aphylla*), with other nests, about six feet from the ground. 'January 28th.—In a *bêr* tree, about ten feet from the ground, the nest loosely made of the flowering stalks of delicate grasses, with a good deal of cotton, and one greenish rag incorporated; only one egg.' 'I have never taken more than eight eggs in any nest, and I have never, myself, had any reason to believe that more than one pair were concerned in the construction, or equipment, of any nest I ever met with; but it will be seen that two pairs do sometimes combine to build and fill a single nest.'"

Mr. Oates then quotes Theobald's observations in support of this statement; after which he proceeds as follows:—"Mr. Brooks tells me he has often taken eggs at Mirzapoor, in December, and I have found young birds often in the commencement of January, so that I see no reason to doubt the hatching of the December eggs.

“ Sometimes they will even share a nest with another species. Colonel G. F. L. Marshall remarks of this *Munia*:—‘ I have taken eggs hard-set in the first week in February, in the Allahabad district. I have found them breeding in the eaves of a verandah, the nest being formed of the usual materials—fine grass-stems in seed, but used only to line the hole in the roof. Out of one nest similarly situated, but made of grass and feathers mixed, I took seven eggs of this bird, and four of *Passer indicus*. The nest in this case was probably built by the Sparrow.’

“ Major C. T. Bingham says:—‘ Breeds both at Allahabad and at Delhi from February to September. Eggs white, from four to eight in number; nest of grass, sometimes domed, sometimes a mere pad.’

“ Mr. R. M. Adam, under date November 15th, 1867, writes from Baraich:—‘ On the 25th of October I found a half built nest of *Munia malabarica*; two days after, on visiting it again, I found it finished. November 3rd, I found three eggs; on the 9th one bird was hatched and four eggs in the nest; one was hard-set, which I left, the other three I took and cleaned, and found in them just the germs of life. On the 10th, the egg I left was hatched. On the 12th, I found the birds had deserted the nest. It was built on a saro-tree (*Cupressus sempervirens*) in the public gardens, about five feet from the ground, and was composed of several kinds of green and dried grasses, some of the heads of which were downy, and these with some soft feathers formed the lining of the nest. The grasses were matted without much skill into a shape like a Florence flask without neck, and supported by the branches and twigs of the tree. There was only one opening, which measured two inches in diameter.

“ ‘ The size of the nest varies greatly, I have seen some fully two feet in circumference.’ ”

Mr. F. R. Blewitt gives the following account of a nest of this species that he found in the Delhi district:—“ As my man ascended a tree to fetch the eggs from an Eagle’s nest (*Aquila fulvescens*), I saw a pair of the small *Munia malabarica* hopping about from branch to branch, near to the nest, in great anxiety, chirping loudly all the while. Taking the binoculars to watch the birds and their, as it appeared to me, strange movements more closely, I saw one of them suddenly enter and disappear in a small hole in the *under* part of the large nest, the other immediately followed the first, then both came forth and commenced hovering about the man, who had by this time reached the nest. Not knowing what the hole could be there for, I directed the man to inspect it, when to my astonishment, it turned

out to be a nest *in* a nest. The Munias evidently selected that of the Eagle to make their own in, to secure warmth from their mighty companion."

The following account is also from the pen of the same author:—"Breeds in August and September. The nest is a large loosely constructed fabric of fine grass, at least on the outside. The lining is a soft flowering grass, and very neatly laid on the interior of the nest. The nests are almost always found supported in branches of low jungle bushes, sometimes about the middle, at others near the top. The nest is of various shapes, and its *intended* form appeared to me to be regulated according to situation. When it could be done, with convenience as well as safety, the nest assumed an almost globular shape, with an entrance hole at one side; at other times it is open at the top, with the sides, or rather the grass of the sides, curving over. Again, some of the nests were of the shape of a hemisphere, with a hollow for the eggs; but whatever shape, the material of the nest was the same.

"It is very difficult to state the number of eggs of a pair. I have found as many as fifteen in one nest, and every one of them quite fresh, at least on blowing them they appeared to be so. No doubt the eggs were of some two or three pairs. But, I believe, six is about the regular number of one pair. In the assistant's bungalow at Bubeena, a Weaver-bird's nest was hung up at one end of the verandah. Some short time after a pair of Munias took possession of it, and, though the people were constantly passing within a foot or two under it, the female laid six eggs. Unfortunately the peon on watch with his *lathi* accidentally struck the nest and capsized it, eggs and all."

From Poona, Mr. E. Aitken writes:—"I have seen countless nests of this bird, but it is difficult to give any accurate account of its nidification, owing to the confused way in which it manages its domestic affairs. Sometimes two pairs seem to unite in partnership, or, again, solitary females will go on laying any number of barren eggs, as fast as the lizards can eat them up! So my information must be a little vague.

"In Poona they breed in the cold season; they commonly build all over the rocky plains, but many also in gardens in the cantonment. The nest is usually about six feet from the ground, and varies from a large hollow ball of fine grass, with a hole at one side, to a flat nest with some of the grass bent over in an arch. The material is almost always plain grass, there is no lining. In one case, which I

took to be a real *bonâ fide* attempt to bring up a single family, I counted with my finger six eggs; but I cannot remember any other trustworthy case in which there were so many eggs belonging to one pair.

"I believe they frequently use their own and each other's old nests. Jerdon does not mention that they employ their old nests to sleep in. I have driven a whole flock out of one after dusk."

Colonel Butler makes the following remark:—"I have seen numerous instances in the neighbourhood of Belgaum, of nests built in the stick-nests of *Neophron ginginianus* and *Aquila vindhiana*, similar to the instance mentioned in the *Rough Draft of Nest and Eggs*, p. 453. In fact this appears to be one of the favourite sites selected.

"This *Munia* breeds in the neighbourhood of Deesa, most plentifully, I believe, during the rains; but I have taken nests in almost every month of the year. I have seen as many as fifteen eggs in one nest, and numbers varying from nine to twelve are common. On the 28th September, 1876, I found a nest containing fourteen eggs, of which seven were much incubated, two slightly so, and five quite fresh. Only one pair of birds appeared to be in possession of the nest."

Mr. G. Vidal, writing of this *Munia* in the S. Konkan, says:—"Scarce. I found a nest on the 28th January, 1879, in hill-side jungle in a *bêr* (*Zizyphus jujuba*) tree. The nest, a round globe, was made externally of very dirty coarse grass, with a very small opening at the top on one side. The nest inside was also shabby, but the lining was of finer grass, and for ornament there were a few Green Paroquet's feathers. Two old birds were sitting on four eggs. I got one bird, and while I was waiting for the other to return, a lizard got into the nest, and within five minutes succeeded in destroying three of the eggs, breaking two and making away with a third." In the Deccan, according to Messrs. Davidson and Wenden, this species is "very common, and breeds at all seasons."

"In Ceylon this species breeds from December to March. The eggs are pure white, spotless, and devoid of gloss; typically rather broad and perfect ovals."

As will be seen from the foregoing observations, on the nesting habits of *A. malabarica*, Indian naturalists have taken more pains to study the life of this one common dull-coloured little Grass-finch, than they have in the case of any other species, excepting, perhaps, the Baya Weaver. The only explanation seems to be, that widely distributed and abundant species, which build conspicuous nests in every imaginable position, are more easily studied than others. They come under the

notice of everyone; and if information is asked for, almost any wide-awake person can give it.

However, "in the multitude of counsellors there is safety"; therefore, with all these witnesses to the fact, the aviculturist may be certain that he can pair up this species for breeding at any time in the year, without doing violence to its natural instincts. He may also be sure that several pairs, associated in the same aviary, will not hinder the breeding arrangements of each other. Finally, he may be quite satisfied that a bundle of hay and a few feathers, or even lint, will suffice for nesting materials.

Dr. Russ says:—"In its manner of life and in its entire behaviour, as well as in its song, this bird resembles its African relative, and, moreover, the slightly harsher and shorter humming* of the Indian species can scarcely be distinguished, unless one sees it. The call-note sounds tolerably loud *cheet cheet*. Even the development of the brood is identical. *The Young plumage* is of an almost uniformly very dark brownish-grey, below scarcely perceptibly clearer; beak shining black. These two *Amadinas* are so nearly related, that in the bird-room they always live and nest together. Dr. Bolle had mules bred from them, and in my bird-room similar hybrids also left the nest, notwithstanding the fact that both sexes of this and the other species were present." He further observes that in spite of its abundance in India, it is very little imported.

Illustration from a living specimen in the author's collection.†

THE MANNIKINS.

AS previously mentioned, these birds can only be arbitrarily separated from the typical Grass-finches, with which they are connected by *Aidemosyne*, *Stictoptera* and *Amadina*; indeed, as I have already pointed out, *Aidemosyne* is a Mannikin in everything but its form and its

* I cannot understand what he means by this, for I never heard my African birds humming: the song being a clear trill.—A.G.B.

† It died of cramp, while bathing, in December, 1895.—A.G.B.

song; its greater activity is probably partly the result of its finer build.

Another complete link between the so-called Mannikins and the Grass-finches is the Bengalee, or Pied Mannikin; regarded (I think rightly) by Mr. Abrahams as a fertile hybrid, derived from the Indian Silver-bill and the Striated Finch, but having more nearly the character of the latter than the former; for which reason I place it at the commencement of this group.

For show purposes it is convenient to fix a limit to this arbitrary group; otherwise it might be altogether ignored. In all its main features it corresponds with the typical Grass-finches, the distinction being one of external aspect, chiefly due to a combination of black, various shades of chestnut and usually white, together with an unusually heavy conical beak. To this general rule *Munia* (or *Padda*) *oryzivora*, the Java Sparrow is an exception; its colouring is wholly aberrant, and its forehead is almost level with the base of its powerful beak; its song, and its position when singing, moreover, are entirely unlike that of any true *Munia*, whilst its chattering seems to indicate an affinity to the Weaver-birds.

A comparison of the Ribbon Finch with the various Spice Finches, or of the Gouldian with the Chestnut-breasted Finch, should, I think, convince any sceptical aviarist that the true Grass-finches and Mannikins have a very great deal in common; that they are not difficult to cross, has been proved by the successes of our German friends.

The late Consul R. Swinhoe informs us, that the Chinese bird-catchers pick off *Muniæ*, and other birds, from the trees by means of a little bird-lime stuck to the top of a bamboo pole.

THE BENGALEE.

Aidemosyne malabarica + *Uroloncha striata*, LINN.

THIS delightful little fertile hybrid was produced by the Japanese, who, probably, carefully bred and selected for some hundreds of years, until they developed the three well-known forms. These are,



THE BENGALEE.

(*Aidemosyne malabarica* + *Uroloncha striata*.)

firstly, white pied with purplish-brown, the patches of colour, as a rule, being chiefly on the crown, leaving two large spots behind the beak on the forehead; the shoulder and thighs, the back, wing-coverts and secondaries are similarly coloured. The second form is white, similarly pied with fawn-colour, and the third is pure white. All three have flesh-tinted beaks and legs, and black-brown eyes. The dark brown pied type is slightly the largest, and has a dark upper mandible, and the white type the smallest.

The Bengalee has been called Pied Mannikin; Dr. Russ, who regards the three forms as varieties of the Sharp-tailed Finch, calls them respectively "*Spermestes acuticauda* var. *griseo-maculata*," "*var. flavo-maculata*," and "*var. alba*;" but Mr. Wiener regards them as varieties of *Uroloncha striata*. Mr. Abrahams writes as follows: "In my opinion the Bengalees are a cross between the Striated Finch (*Munia Striata*) and the Indian Silver-bill. If you look at the back of the Bengalees you will see the distinctive marks of the Striated Finch."

Although I was personally inclined to think, from the similarity of song, in what at first I took to be the Sharp-tailed Finch, that the latter was one of the ancestors of the Bengalee, I immediately yielded to Mr. Abrahams' far wider experience; indeed, I have since discovered that the song of the two species, *U. striata* and *U. acuticauda*, is somewhat similar.* Moreover, we must bear in mind the fact that Dr. Russ associates "*Spermestes striata*, *Spermestes melanopygia* and *Spermestes acuticauda* under one description, and says: "These three species are universally known, and beloved in the bird trade, under the denomination of Bronze Mannikins, mostly without being individually distinguished." This is not, strictly speaking, correct, because in England the true *Spermestes* (and more especially *S. cucullata*) are alone sold under this name; the Indian birds of the genus *Uroloncha* being probably confounded by the small dealers, under the designation of "Sharp-tailed Finches."

The inferior size of all three varieties, and the fact that (although domesticated) they are by no means prolific, seem to me strong indications that the Bengalee is not a pure descendent from the Striated Finch.

My first two pairs of Pied Bengalees were presented to me by the Hon. Walter de Rothschild, and greatly delighted me by their tameness, and their comical jerky little actions; but Mr. Wiener's account of

* My birds, however, proved to be "Straited-Finches," though sold to me as "Sharp-tailed Finches."—A.G.B.

them made me half afraid to turn them loose in my bird-room among the wild Mannikins and Astrilds. This author says: "Through being bred by the Japanese in miniature cages, the imported White and Piebald Mannikins seem to be almost unable to fly, and consequently they are nearly as helpless in a large aviary as a young bird just leaving the nest. They tumble into the water, or hide in corners, or get into all sorts of scrapes."

Now, as I do not think that *Crede experto* is a motto always to be followed, I concluded to turn my birds out and see what would happen; so I slid up the door and out they flew boldly, alighting on the sand, upon which they hopped about for some time, occasionally taking short flights on to the wire-netting, or on to some pea-sticks stuck in a pot in one corner of the aviary. After about an hour of this play, one of them suddenly flew directly upwards to a branch some ten feet overhead and joined a party of *Munias*, and within ten minutes the three other birds had followed his example. The next morning, when I entered the bird-room, I looked round, somewhat anxiously, to see what had become of my new children; I found the two cock birds singing their ridiculous song, which, to my mind, resembles nothing so closely as it does the sound made by the little woollen sheep on wheels, which one sometimes sees children dragging along the pavement, dancing to their hens with a peculiar zigzag sort of approach, and evidently quite at home.

Presently one little fellow flew down to a ledge close to me, looked up in my face and uttered a sound like *whék*. I got him a rape seedling, which he took immediately from my fingers, and after eating it flew to the fountain, had a drink, then a good wash, and was shortly afterwards joined by his companions, and many other inhabitants of the aviary.

So far from the Bengalees proving to be dull or helpless, I have found them more fearless in perching upon the rim of the glass bowl, into which the fountain falls, in venturing into the bowl itself, more quick to comprehend the meaning of a seed-hopper, and stronger on the wing than the majority of the small, newly imported finches. Before many days were over, both pairs were busy building a nest in the same box, where each hen laid one egg, hatched and reared it; the two hens sitting side by side, each on her own egg. This they did twice in the same year, thus exactly doubling their numbers. The following year, only one Bengalee left the nest, and was almost immediately killed by Zebra Finches. Although many eggs were laid, these were all that I reared; and some months afterwards the Bengalees

began to drop off one by one, until I only had a pair of the dark, and a cock of the light form living.

From Wiener's and Russ' statements, one would have expected unusual productiveness from these birds, and the want of it puzzled me considerably; eventually, however, I concluded that, as Bengalees had for many generations been bred in cages, it was hardly fair to turn them in with a number of rough wild birds, which, doubtless, often disturbed them during incubation. I, therefore, tried my pair in a large breeding-cage, where they built and laid eggs from time to time, but without hatching them. I next purchased from Mr. Abrahams a pair of the white variety, with the result that about three days later I found the cock bird dead. I then took my net and entered the bird-room to catch my sole remaining cock of the fawn and white variety. I could not help smiling, as I thought of Wiener's "almost unable to fly"; for so quick was that bird in avoiding me, that I was obliged to call my son in to catch it, whilst I stood with a long cane at the other end of the aviary and repeatedly drove it towards him. Even thus, it took about twenty minutes to capture it. I now paired this bird with the white hen, which died egg-bound on February 26th, 1894. After the death of my white hen, I transferred my last remaining pair of dark pies to the breeding-cage; the hen laid numerous eggs, and on October 21st, 1894, one young bird left the nest; it was reared chiefly on millet-seed; another was reared towards the end of the year.

In 1886, a pair of the white variety, in a flight-cage, reared two young, but only one at a time; the first of these died when about two months old. In another cage a pair of the fawn and white variety associated with a Sharp-tailed Finch, the cock Bengalee paired with the latter, which laid one egg; this was hatched and reared by the Bengalees, she then went to nest and laid four or five eggs; three young were hatched and reared; lastly, towards winter, a fifth left the nest. Excepting for a few extra white feathers, these cross-breeds resembled their mother.

Bengalees are particularly fond of spray millet and grass-seed; and, when breeding, they will consume a quantity of Abrahams' food, sponge-cake, or any sweet cake or biscuit; they are also delighted with seedling lettuce and rape.

Illustrations from living examples and skins in the author's collection.

THE STRIATED FINCH.

Uroloncha striata, LINN.

THIS is an inhabitant of Central and Southern India and Ceylon; it is rather a pretty bird, though modestly coloured.

The adult male is smoky brown above, streaked with white shaft lines; the feathers of the back with dusky subterminal bars and pale tips; wing-coverts slightly darker; quills, blackish-brown, the inner ones with white shaft-lines; croup white; upper tail-coverts blackish, edged with brown; tail feathers black; forehead, lores, cheeks, throat and chest black, the last mentioned with barely visible pale shaft-lines; breast and abdomen white; lower flanks, thighs and under-tail coverts dark reddish brown, with pale shaft-lines, whitish on the flanks; axillaries and under tail-coverts buffish-white; edge of wing mottled with black; flight feathers below blackish, whitish along the inner webs; length five inches; upper mandible dark leaden grey, the lower one bluish with dark tip; legs leaden grey; iris reddish brown.

The native names for this species are *Shakari Munia* and *Tau-tsa*, according to Blyth.

Jerdon says: "I observed this species in the Malabar coast and the Wynaad, frequenting grain-fields, open spaces in the jungle, and occasionally on the road-sides, and even in stable-yards, feeding on the various kinds of grain and seeds. It lives in small communities of six or eight, or more."

In his *Birds of India* he says: "This species is most abundant in the Malabar coast, where it is occasionally to be seen in vast flocks feeding in the rice-fields. It also occurs sparingly in other parts of India, in the Northern Circars, in lower Bengal, Arrakan, and Ceylon; but is replaced in the lower Himalayas, and throughout the Burmese province, by the next species. It is also stated to occur in Java.

"In Malabar it is a familiar bird, being constantly seen on the road-side, about houses, and in stable yards; builds in gardens and orchards, making a large, loosely constructed nest of grass, and laying four or five white eggs during the rains."

Oates (Hume's *Nests and Eggs, etc.*) says: "The breeding



SHARP TAILED-FINCH ♂.
(*Uroloncha aculicauda*)

STRIATED FINCH ♂.
(*Uroloncha striata*)

season of the White-backed Munia varies, apparently, very much according to locality. In the Nilghiris they appear to lay in July and August. From Yarkand (Central Asia) a nest was sent me, taken on the 28th of September, containing six eggs. Near Raipur (Central India) a nest was taken in January, and at Maunbhoom in April. A nest secured by Mr. F. R. Blewitt, in the neighbourhood of Raipur, on the 2nd of January, was a very large, loose, partially domed, oval shaped structure, composed interiorly of very fine grass stems, exteriorly of coarser grass, largely intermingled with dry bamboo leaves. Exteriorly the nest was about eight inches in height, and five inches in diameter. The cavity, the aperture of which was a little on one side, and nearly at the top, was nearly five inches deep and about three inches in diameter. The nest was very loosely and coarsely put together. It was placed on a branch of a Karounda (*Carissa carounda*) bush, about five feet high, growing on the bank of a nullah."

Mr. E. Aitken writes: "I once found a nest of this Munia in Bombay, about twelve feet from the ground, I think, in a small tree. I took no note of it at the time, but I recollect that they had two young ones flying about with them soon after. Perhaps, however, some particulars of a pair that bred in a cage may be useful. The nest was a darkened compartment, which they filled with fine grass which I gave them. I could not watch their operations too closely for fear of frightening them; but I took some notes. First, they laid an egg with a soft shell, and broke it; so I supplied them with chalk and old egg-shells, and they began again. This time I thought the female laid three eggs; but only two young were forthcoming, and if she had another egg they must have disposed of it themselves. I supplied them with bread and yolk of egg, with which the male assiduously fed the female, all the time of incubation, and for ten days after the young were hatched. During these ten days I only saw the female twice. After that they shared the duty of feeding their offspring between them."

Miss M. B. Cockburn tells us that "The White-backed Munia is not a resident on the Nilghiris, but accompanies the Amaduvades and Spotted Munias in their migrations, and is generally met with in their company, except in the breeding season, when they are seen alone and in pairs. They are not numerous and are very shy, never approaching any house. In this respect they are quite unlike the Spotted Munia, whose unceremoniousness endears him to us. The White-backed Munia's nest resembles that of the Spotted Munia, being a large accumulation of grass, with a small opening at one side.

Nothing warm is used as a lining. The nests are found in July, and contain six or eight pure white eggs."

Mr. J. Darling, junr., remarks: "This bird breeds very commonly up in the Wynaad. Builds a nest of grass, put together in a ball shape, with a hole in the side; it builds in all sorts of situations, but is especially fond of building in the parasitic plants on 'gooseberry trees.' They lay from four to eight eggs. I have found nests from April to June, and also in November and December."

Mr. Vidal, writing from S. Koukan, says: "Common everywhere in gardens and jungles. I have found numbers of old nests, used as roosting places, but have never succeeded in getting any eggs."

In Ceylon, according to Colonel Legge, these *Munias* appear to be constantly nesting.

I purchased two specimens of this species, from a friend about the year 1892; he had obtained them with others from a dealer, under the name of Sharp-tailed Finches, and until I examined the skins of the two species side by side, I was naturally under the impression that my birds were *U. acuticauda*. Consequently, when I compared them with the dark form of the Bengalee, and noticed that the actions, character and song of the two birds were almost identical,* I had no doubt, in my own mind, that one was derived from the other. But, when Mr. Abrahams gave me his views, as to the parentage of the Bengalee, I took the earliest opportunity of discovering how the two allied species *U. striata* and *U. acuticauda* differed.

I think the briefest way to describe the distinction, between the Striated and Sharp-tailed Finches, would be to say, that the latter is decidedly smaller, browner and varied with tawny; it is, in fact, not half such a pretty bird as *U. striata*: it somewhat approaches the Chestnut-breasted Finch and the Spice-birds in aspect.

My birds proved to be both males, and though they were more than willing to pair with Bengalees, the latter, being already accommodated with husbands, did not take kindly to their rather more boisterous allies, and I am afraid the only result of the introduction of the latter into my bird-room was, to increase the number of disputes and prevent the Bengalees from settling down quietly.

Dr. Russ says:—"Although this Ornamental Finch is one of the most ordinary, it is, nevertheless, regarded with some favour, and, therefore, may be found in many bird-rooms. In disposition it is not so restless, agile and graceful as a Little Magpie (*Bronze Mannikin*)

* The song of the Sharp-tailed Finch is rather different—"Tik-tik-tik-tik-tik-tik-tik-tik choo-uck," nor does this bird resemble any variety of the Bengalee.—A.G.B.

but, nevertheless, quite as unassuming and hardy, and in all respects peaceable. It delivers its comical humming song, spreading its tail like a fan and solemnly turning its head from side to side. The sexes are not differently coloured, and the male can only be certainly identified by its humming. Some pairs breed very readily in cages, but others do not at all. In the bird-room they build a nest in a Hartz cage, but somewhere in a corner. The development of the brood corresponds with that of the Little Magpie (*Bronze Mannikin*). The first pair which nested in my bird-room, consisted of two forms, a striped and black-rumped Bronze Mannikin.* The young, however, resembled the other pairs."

It must here be borne in mind that Dr. Russ considers the species of *Uroloncha* to be Bronze Mannikins; to which, indeed, they appear to be nearly related. The species known in the English bird-market under this title is, however, more active; and, at times, decidedly spiteful: indeed I have seen my Striated Finches chased hither and thither by one of my examples of *Spermestes cucullata*.

Illustration from living specimens in the author's collection.

THE SHARP-TAILED FINCH.

Uroloncha acuticauda, HODGS.

THIS species is nearly allied to the Striated Finch, but instead of having the back brown, the croup white, and the upper tail-coverts blackish, with brown edges to the feathers, it has (according to Dr. Sharpe's description) a broad belt of white across the back, and the croup and upper tail-coverts reddish-brown; the wing-coverts blackish, the sides of neck and fore-chest rufous-brown; the ear-coverts and sides of neck tawny-reddish, spotted with white, the sides of the white under parts slightly mottled with dull brown; the flanks, thighs and

* *U. melanopygia*, a nearly allied species, with the lower back black, instead of white.—A.G.B.

under tail-coverts reddish-tawny, with white shaft-streaks; the axillaries pale tawny-buff; the feathers of the under wing-coverts brown at base, otherwise whitish; the quills tawny-buff along the inner web. Length $4\frac{1}{2}$ inches. Upper mandible blackish, lower mandible leaden-grey; legs leaden-grey; iris dark brown.

Inhabits the Himalayas from Massuri to Sikhim, through Assam and Burmah to Malacca and Sumatra: the native names are said to be "*Samprek-pho*" and "*Namprek*," also in Penang *Petap*.

According to Jerdon, this species chiefly differs from the Striated Finch in the lineolated character of the white under parts; he says also:

"In the Sikhim Himalayas it ascends to at least 5,000 feet, and is tolerably abundant near cultivated lands. Its nest is of the usual structure, large and loosely made of fine grass, and there are generally five or six white eggs. I found it far from rare on the Khasia Hills, whence it had not been previously sent, and it probably will be found all through the intervening country to Mergui (where Blyth obtained it), in suitable localities."

According to Helfer it is common near Mergui, in Tenasserim, in large flocks, and is always on the ground.

Oates gives the following notes in his edition of Hume's *Nests and Eggs, etc.*:—"Writing from Sikhim, Mr. Gammie says: "A nest taken out of a small tree, some ten feet from the ground, in the valley of the Ryang, about 2,500 feet above the level of the sea, on the 20th of June, contained six hard-set eggs. For so diminutive a bird the nest is enormous; externally it is five inches in diameter, and seven in height, and even the egg cavity was six inches deep and more than two inches in diameter inside; but the actual entrance was, of course, much smaller. It is entirely composed of grass, the basal portion and the exterior at the back, where it was wedged against the stem of the tree, of very coarse and rough grass, much of it broad-bladed, the upper portion and the whole of the interior of very fine grass."

Later, he remarks:—"This *Munia* lays between the middle of June and the middle of August, at elevations of from 2,000 to 4,000 feet. It builds from six to twenty feet from the ground, in open country, in shrubs and small trees. The nest is globular, entirely made of the grass-panicles, from which the seeds have dropped, intermixed with a few bamboo leaves, and measures, externally, about six inches in height, by the same in width, while the cavity is about three inches in diameter, by the same depth from the lower edge of entrance. The entrance is in the side, close to the top, with a quantity of the grass,

of which the nest is made, projecting over it. The eggs are white, and five or six in number.

"This bird is much disliked by the natives, on account of the large quantities of rice which it consumes. I have seen a flock of twenty or thirty clinging to a single head of flowering grass, when they appear, from a distance, more like a swarm of bees than a flock of birds.

"My bird-skinner came back from Chola, but with very little, and nothing of any consequence. About ten days ago (16th November) I saw the young of *U. acuticauda* only half-fledged. I asked myself how is it that the young of this bird is hatched so much later in the year than all the other birds about here? and it struck me that the parents had sense enough not to have their young hatched until the rice (on which they chiefly feed) was ripe, so that they could, with minimum of trouble, feed their brood. In the same way the Hornbill places its nest near, or in the fruit trees, and contrives to hatch its young when the fruit of those trees is ripe, with which the male can easily feed the female and the young. The time of the most abundant supply of food, appears to me, to have more influence on the nesting time than has the season of the year. The same principle, in a kind of way, partly applies to human beings; for instance, in Kent and Sussex, the 'hopping-time,' when there is most money about, decides the time for marrying of many of the working people in those counties."

Mr. Irwin, who took a nest of this species in the Tipperah Hills, in June, described it as composed of fine grass-stems placed in a half-open hole in a low bank. It contained five eggs.

Mr. Davison, writing from Mergui (Tenasserim), observes:—"This species is either a very irregular breeder, or it has several broods during the year. In November it was not only breeding, but there were many fully-fledged young abroad, usually in small parties, without any admixture of adults; and now in June there are still young to be found, that have not long left the nest, and nests are to be found containing eggs, both fresh and hard set, while other nests are in course of construction.

"The species is very plentiful, and breeds freely, resorting to gardens or low secondary scrub for the purpose, and never, to my knowledge, to grass or rushes.

"Usually the nest is placed at a moderate elevation in some bush—a thorny one by preference.

"On June the 20th, I took a nest with five fresh eggs from a small citron tree. It was rather compactly put together, composed on

the outside of dead leaves and coarse grass, and thickly lined with fine flowering grass-stems, the ends of which projected beyond the entrance, forming a short neck.

"The nest measured about 9 by 5 inches, along the major axis, and about 5 by 5 along its minor axis.

"The eggs of this species are elongated ovals, pure white and glossless, indistinguishable from those of nearly allied species."

Dr. Russ considers this bird so closely related to the Striated Finch, as hardly to be regarded as a distinct species. He says: "I have had several examples to compare with it and could find no difference whatever, excepting that the white of the lower body appeared dirty brown, and on close examination marked with dark brown scaling, the throat and upper breast finely streaked with white.

"In the course of years I have only once been able to acquire five head; the striped Bronze-Mannikin, on the other hand, may be obtained every year from Hagenbeck and Jamrach." Dr. Russ says he was not successful in breeding this species: but there is not the least doubt that its treatment would be precisely the same as in the case of the allied species, and, therefore, it is not of very great consequence. I purchased two males of the species for a few shillings in 1894, and from these my illustration is taken.

During the last few years there have been plenty of specimens of this bird in the market, and I have added one or two to my collection, but there is nothing specially attractive about them.

THE SPICE FINCH.

Munia punctulata, LINN.

[HABITS the greater part of India and Ceylon, where it is extremely common. This and its races are among the most abundantly imported species.

Above, *M. punctulata* is reddish chocolate, with narrow whitish



SPICE BIRD. ♂.
(*Munia punctulata*.)
a. var. nisoria. ♂. b. var. tophela. ♂.

shaft-lines; the lower back crossed by wavy dark brown bars; croup and upper tail-coverts straw-coloured with a golden lustre; tail feathers dark brown, yellowish externally; flight feathers dark brown, reddish externally; head dark chestnut red, with faintly-marked shaft-lines, sides of neck a little paler; remainder of under-surface white, the feathers barred and edged towards the sides of the body with chestnut, and at the sides with blackish; thighs greyish-brown with dark bars; under tail-coverts whitish buff; under wing-coverts buff slightly barred; the edge of the wing mottled with white; flights below dusky, with the outer webs somewhat yellowish. Length $4\frac{1}{2}$ inches. Beak bluish-black, the lower mandible a little paler; legs leaden-grey; iris brown.

Of this species I received ten examples in 1892, brought home from Bombay by the Captain of a trading-ship. I already had a pair in my bird-room, I, therefore, turned in four others, and let the remaining six fly in my cold aviary. I find that they are absolutely indifferent to temperature.*

As there has been much confusion between the typical species and its races,† I give the following distinctive characters on Dr. Sharpe's authority:—

Munia subundulata, GODWIN-AUSTIN.

Differs from *M. punctulata* "in the more olive-yellow shade of the rump, upper tail-coverts and tail, and the generally more ashy black of the flank-barring, which, moreover, is not so strongly pronounced as in *M. punctulata*. On the rump the feathers have not the second subterminal dusky bar which is seen in the latter species."

"*Hab.* From Cachar to Manipur, Burmah, and Tenasserim, eastward to Cochin China."

This race is probably often imported, but is not distinguished from the commoner Bar-breasted Finch of India, or is confounded with *M. nisoria*.

Munia topela, SWINH.‡

Called by importers the "Topela Finch": it differs, according to Dr. Sharpe, as follows:—

"A shade of ashy-olive over the rump, and with the upper tail-coverts and tail shaded with pale straw-yellow; the chestnut-throat

* One or two of these Mr. Abrahams identified with the Bar-breasted Finch.—A.G.B.

† This confusion has arisen from the fact that such well-known scientists as Blyth, Jerdon and Oates, have confounded the races with the type *M. punctulata*.—A.G.B.

‡ Specimens of which were given to me in 1894, by Mr. Abrahams.—A.G.B.

more restricted than in the Indian species, and the barring on the flanks more dusky blackish."

"*Hab.* Southern China, Formosa, and Hainan."

Munia nitoria, TEMM.

Owing to the confusion between this race and the typical form, the trivial name has been misapplied: I should, therefore, suggest that this should be called the Malayan Spice Finch. Dr. Sharpe gives the following characters:

"A grey shade over the rump and tail, with scarcely any olive-yellow; the rump-feathers are like those of *M. topela*, plain, with a pale edging, but with indications of two dusky bars." "I am not sure that these light bars are not signs of age." "*Hab.* Malayan Peninsula; Java."

With regard to the Philippine form, *M. cabanisi*, it is doubtful whether it is ever imported, and, therefore, I need not indicate its characters.

I have already mentioned that a pair of Spice-birds formed part of my first purchase of Foreign Finches: these were certainly not typical *M. punctulata*, for they could not only be at once distinguished by the redder appearance of the barring on the breast, but by their possession of a distinct song, not unlike that of the Bengalee. Unfortunately, when they died, I had no idea of ever publishing anything upon the habits of my feathered friends, and consequently omitted to preserve their skins.

The song of the common form is a weak metallic vibration, followed by a laboured creaking, repeated three times, and terminating in a thin, long-drawn whistle, only just audible. Like all the Mannikins, this bird is a most industrious builder, and readily lays in a covered nest-box, but I have never been successful in breeding it.

Jerdon, speaking of the typical form (*M. punctulata*) under the name of *Spermestes nitoria*, says:—"I obtained this pretty species on the Neilgherries, frequenting long grass and bushes, and feeding on various seeds, in small parties of four or five. It is met with occasionally in various parts of the country, as in Mysore, and some of the more wooded spots, near large towns in the table-land."

Pearson, however, says that it "Flies in large flocks, and is to be met with in most parts of Bengal."

Later on, Jerdon calls this species *Munia undulata*, and stated that "the nearly allied *M. punctularia* (*nitoria* of Temminck) occurs in the Malayan provinces." The following is his account of the species:—

"The Spotted or Barred Munia is found throughout India and Ceylon, somewhat rare in the extreme south, common in the north, and spreading into Assam and Burmah, as far as Tenasserim.* It is somewhat local in its distribution, but, where met with, is there tolerably abundant. I have seen it on the edges of the Neilgherries, and in various parts of the Carnatic and Central India, as well as in Bengal, but it does not occur in the Malabar coast. It is occasionally found in grassy or bushy ground, and Buchanan Hamilton states it to live in thickets of Hugla grass (*Typha elephantina*), near villages where small grains are sown; but more frequently it occurs near cultivated ground, affecting mango groves, or patches of tree jungle. It builds in thorny bushes, chiefly about fields, and makes a large nest of very fine grass, or not unfrequently of the flowering tufts of some *Saccharum*, which I have often seen it conveying to its nest; and I have always found the nest solitary, contrary to Mr. Layard's observations, who states that he has seen thirty or forty nests in one tree, and that in one instance he found one structure containing several nests. The eggs, of course, are pure fleshy white, usually four to six in number. At Thayet-myo, I found it building in a hole in the thatch of my bungalow. Blyth states that this bird, which is very commonly caged, is known in Bengal as the Nutmeg-bird, from the peculiar mottling of its breast."

Mr. Allan Hume gives the following very complete series of notes on this species:—

"The Spotted Munia breeds throughout India and Burmah, alike in the plains and in the hills, up to the elevations of from 4,000 to 5,000 feet, but as a rule only in well-wooded and watered tracts. In the more arid portions of the North-Western Provinces, the Punjab, Rajpootana, and Sind, it is but rarely, and in many localities never seen.

"I have invariably found nests in July and August, both in the plains and in the Himalayas, but in the Nilghiris the breeding season seems to last, in one part or other of these hills, from February to September.

"The nests are, as a rule, placed at heights of from 5 to 7 feet, and very rarely above 12 feet from the ground, in thick thorny bushes or trees. In the plains the various species of acacias, in the hills the barberries, are much resorted to as nesting sites. Occasionally the nest is placed in very unexpected situations, in and about houses, as amongst creepers trained against the verandah trellis, in a large straw scarecrow placed in a garden close to the house, in an old thatched roof, &c.

* Here he is, of course, including the race subsequently named *M. subundulata*.—A.G.B.

"The nest is globular, very large indeed for the size of the bird, an oblate spheroid as a rule, from 8 to fully 10 inches in diameter, and 6 to 7 inches in height. The nest is usually wedged between some convenient fork, and not uncommonly, rests upon a sort of foundation of the same materials as those of which it is itself composed, viz., rather coarse, often broad-bladed grass, used green, rice and barley straw, leaves of bajera and jowar, and the like. The entrance is on one side, circular, about 2 inches in diameter, and neatly lined throughout, together with the whole interior of the cavity, which may average 5 inches in diameter, with fine grass-stems, the beards of wheat (our Indian bearded wheat), and barley or rarely fine wire-like roots.

"The number of eggs laid varies much. Seven I consider to be the normal number, but I have found only four hard set, and some of my correspondents have taken ten eggs in a single nest.

"From Hoshungabad Mr. Nunn writes:—'Nest and seven eggs secured on 11th August; the former was made on the branches of a low thorn-bush, some 6 feet high, well sheltered by leaves. This low thorn-bush was growing, with others, at the base of a rocky hill far from water.

"'The nest was a large loose ball of grass as big as a man's head, with a circular lateral aperture about as big as his mouth. Eggs slightly set.'

"Mr. F. R. Blewitt thus graphically and accurately describes a very curious nest which he kindly sent me:—'A nest of this species, which I obtained in the neighbourhood of Raipur, was remarkable as being more compact and massive than those of this species usually are. It was a very irregularly shaped nest, something in outline like a gouty foot done up in bandages, the toe pointing downwards, and the aperture where the leg would join on; exteriorly it was composed of coarse broad-leaved grass; interiorly of fine grass and flowering grass-stems. The walls were fully an inch thick and very compact. The cavity, measured from the aperture to the bottom, was 6 inches from the heel to the mouth of the aperture, and some 4-5 in breadth. The whole exterior portion was composed of green grass, but the fine lining was dry.'

"Mr. Wait, writing from Coonoor, says:—'This little bird breeds with us any time between February and September, but the majority lay between April and May. They make a large, oval, globular nest, some six inches high and 8 or 9 inches in breadth; it is loosely constructed of dry grass, usually the finer sorts, and lined with the

same. The entrance, which is on one side, is small. The nests are placed in low trees and shrubs, commonly in such as are well furnished with thorns. They lay from five to eight dead-white eggs.'

"To my friend, Miss Margaret Cockburn, I am indebted for the following charming account of the nidification of this species:—'The Spotted Munia is migratory with us, and only appears in the Nilghiris during June and the four following months.

"They return regularly to their own haunts, even to the same bushes in which they built the previous season.

"Several pairs of these birds build in the trellis around our windows, so near the ground that I have often put my finger into the nest and felt the eggs.

"I am perfectly sure that each pair takes possession of the same trellis in which it built in previous years, and that should the old nest remain where they left it, they commence another alongside it; should, however, the old abode be removed, they will build again on the exact site which it occupied.

"The great majority migrate, as already mentioned, to the low country during the cold season, and return when the small grains, millets, and the like (cultivated so abundantly by the hill-tribes), are just beginning to come into ear. I have, however, observed one or two of these birds among flocks of Amaduvats during the month of December.

"I have watched with great interest, year after year, these pretty friendly little birds, and have very carefully noted their behaviour and habits. In selecting a place to build on, they sit on a twig, and raising themselves as high as possible, flap their wings over their backs to ascertain that no small branches are likely to obstruct the progress of the building, thus appearing to be fully aware that their nest will occupy a good deal of space. When perfectly satisfied as to the convenience of the spot, the female remains there while the male flies to a short distance, alights on the ground, and breaking off a piece of fine long grass, flies back with it to the female, and continues to bring her at least one piece every minute, while she carries on the building process alone.

"They begin early and build for an hour or so, and then leave it till evening and work late, keeping up an incessant cry of 'Kitty, Kitty, Kitty.'

"The nest is composed entirely of grass; the entrance is at one side, a small round hole, so small that two fingers can hardly be inserted. They build in July and August, and lay from six to ten

white eggs, so beautifully translucent that the yolk is clearly seen through the shell. When the young are fully fledged they accompany their parents to the grain-fields, but continue to return to their nests every evening, for a long time after they have left them entirely for the day.

“‘How they all manage to get in is wonderful; the nest appears perfectly full, and they seem to be restless and uncomfortable for some minutes after entering. In the morning they fly out one by one; those that go first wait for the others on a bush close by; when all are out, away they fly in a flock, and are not visible near their nest during the rest of the day. At one time, I counted no less than fourteen nests of these birds in the trellis of our verandah and windows; besides these, there were others in the garden, on orange trees and scarlet geraniums, which latter here often grow to the height of six and eight feet. Natives frequently go to the nests of these birds during the night and, suddenly shutting up the hole, carry off the nest with all its contents, which sometimes amount to twelve birds, parents and young included.

“‘I have known instances of the House-Sparrow taking possession of the Spotted Munias’ nests. They wait till the latter have finished building, and then (being much bolder birds) drive the poor Munias away, and, adding to the warmth of the nest by a number of feathers, appropriate it to their own use. On one occasion a pair of these Munias had taken a fancy to the trellis at my window. When their nest was completed, an impertinent cock Sparrow seemed determined to take possession of it: but I was equally determined he should not. After a good deal of trouble, the poor owners were again the proprietors of their lawful abode. They appeared to be quite aware that I was taking their part in the arbitration business, and would sit patiently on a fuchsia bush close by till the case was decided. Sometimes one of their own species would approach their building, but at these times I considered them quite able to fight their own battles, and merely looked on. They required no assistance, but would sit close to their nest, cracking their mandibles to show how decidedly displeased they were. This proceeding used often to have the effect of inducing their unwelcome visitor to take his departure; but if he did not think of going soon, they would fly at him and use their bills to such purpose as to make him glad to be off.

“‘Yet, notwithstanding that these little birds are so tenacious of their rights, when invaded by their own species, they are easily intimidated by any strange and unexpected object. A few articles of furniture

being placed under the trellis, which contained several of their nests, so completely frightened the parents away at one time, that they left their helpless brood without food, and would not return even when the objects of offence were removed. Of course the young, receiving no nourishment all day, became fainter and fainter in their cries for food, and at last died.'

"Writing from Sooramungalum, in Salem, Mr. A. G. R. Theobald remarks:—'In this district the breeding season is August. They construct a large round nest (some 25 inches in circumference, with a small circular hole on one side as an entrance) of the broad leaves of Cholum (*H. sorgum*), rice, and barley straw, and in some very thorny bush or tree, commonly selecting the Valum (*Acacia sp.*). The nest is lined with barley-beards. I have always found seven eggs, never more.

"'The pair generally lay a thick foundation (as we may well call it) of Cholum leaves between the forks of a convenient branch, and then they commence building the proper nest, which is of an immense size compared to the bird, which is about $5\frac{1}{4}$ inches in length. It takes them some days before the nest is properly completed. The pair are always seen to fly out of the nest (during the time of incubation) when disturbed; but, I cannot say for a certainty, whether they both sit on the eggs or not; I think they do, as the number of eggs is too great for a single bird to cover. I very seldom found a bad egg amongst the ones which contained young ones. I usually found only a single pair building on a tree, but, occasionally, several build on the same.'

"Mr. Holdsworth tells us:—'I have seen many nests at Orissa and near Colombo, and have often watched the bird biting off the grass-stems and taking them to the nest, which has generally been a large structure, sometimes placed near the end of a branch, but more commonly in a thick bush.'

"Colonel E. A. Butler writes:—'I found the Spotted Munia building at Mount Abou, in September, 1875.

"'A pair were building at the top of a palm tree, about 30 or 40 feet from the ground, on the 23rd instant, and I found another nest on the 28th instant, the eggs of which had, however, unfortunately been destroyed (probably by ants, as portions of the shell remained at the bottom of the nest).'

"Writing from the plains of Pegu, Mr. Eugene Oates says:—'This species builds generally in July and August, but a few nests are found throughout the year. It is common all along the Irrawaddy valley, and nests chiefly in thorny bushes, almost always within the reach of the hand.

“‘The eggs of this species, and I have a vast series from different parts of the country, are typically elongated ovals, more or less pointed towards the small end; and although single eggs of this bird and *U. malabarica* are compared, the more elongated character of the former is very marked. They are, when fresh, before blowing, a delicate pinky-white, the shells, as in the case of so many pure white eggs, being partially translucent; when emptied of their contents, the shells are like little balls of snow, pure, dead, spotless, and glossless white, occasionally, as is the case always with similar eggs, more or less discoloured, if incubation has been at all prolonged.’”

My private opinion is that the two Indian forms *M. punctulata* and *M. subundulata* represent the “Nutmeg Finch” or “Spice-bird,” and “Bar-breasted Finch” of English dealers; but there is so much confusion in the application of the scientific names, scientists and dealers using these appellations in a different sense that, in spite of several letters from Mr. Abrahams, I do not see my way clear. It would seem that *M. punctulata* of scientists (which is *U. nisoria* of Jerdon and of the trade) is the Spice Finch of the scientists and the Bar-breasted Finch of the trade. Then apparently *M. subundulata* (plus *M. nisoria*) becomes the Spice Finch of the dealers, for which Major Godwin-Austin did not propose a trivial name.

Writing in November, 1893, Mr. Abrahams says:—“There are three varieties of Spice-bird, *Munia punctularia* is the common Spice-bird with the greyish rump, *Munia nisoria* is called the Bar-breasted Finch and has a golden-brown rump; this is the bird you have, I think; and the third kind is *Munia topela*, the Topela Finch.”

Unfortunately the true *M. punctulata* of Linnæus is the species with the golden-brown rump according to Dr. Sharpe; at least he calls it “straw-yellow, with a golden gloss;” but of *M. subundulata* he says “pale straw-yellow with an olive tinge, and a shade of hoary olive pervades the tail,” which seems to represent the “greyish” (as contrasted with the “golden-brown”) of Mr. Abrahams’ letter.*

Under the circumstances, I prefer to use the title of “Spice-bird” only, and leave aviarists to settle the naming of the races to suit themselves.

In July, 1894, Mr. Abrahams kindly sent me a pair of the Topela Finch, about which happily there is no confusion.

Dr. Russ says:—“In my bird-room the Javan Nutmeg Finch built

* On the other hand it is possible that the Malayan Spice Finch, which has a greyish shade over the rump, may be the *M. punctularia* intended by Mr. Abrahams: only its real name is *M. nisoria* and it does not come from India.—A.G.B.

several nests, sometimes openly in the bushes, sometimes in a roomy box, or on the top of a wire-cage hanging high up on the wall; these were externally like a tangled heap of all kinds of rough nesting-stuff, but inside were carefully lined with feathers and cotton-wool. The breeding process is similar to that of the little Silver-pheasant. In the course of years, I have only twice obtained young, but of these only one lived. *The young plumage* is uniform fawn greyish-brown; beak, eyes, and feet are black."

The Doctor considers that bird-lovers ought not to trouble to distinguish the races, inasmuch as they are not only extremely similar in plumage, but also identical in their habits, disposition, mode of nesting, &c. I would not go so far as this; for I think every aviarist ought to be able to distinguish the races when he sees them, if possible. At the same time, in the case of the two Indian forms this is not always possible; inasmuch as intergrades occasionally turn up: moreover, Dr. Sharpe says that *M. subundulata* is intermediate between *M. punctulata* and *M. nisoria*. This I can quite believe; for my birds, which came in one cage from Bombay, were considered by Mr. Abrahams to represent these two races; though the true *M. nisoria* is Malayan: thus even the best judge of living birds is liable to mistake well-defined aberrant examples of *M. subundulata* for the Malayan race.

It is therefore probable, as already stated, that the Bar-breasted Finch of the trade is *M. punctulata* and *M. subundulata* in part; and that the Nutmeg Finch of the trade is *M. nisoria* and *M. subundulata* in part: the grades of *M. subundulata* being referred to the race which they chance to resemble most closely.

The Zoological Society calls *M. nisoria* the Bar-breasted Finch.

The illustrations are from living specimens in the author's collection; excepting *M. nisoria*, which is drawn from a skin in the National collection.

THE CHESTNUT-BREASTED FINCH.

Munia castaneithorax, GOULD.

ONE of the handsomest of the Mannikins, this little bird, which is an inhabitant of Australia, was formerly rarely imported; but, at the present time is frequently to be obtained and consequently is hardly ever absent from our bird-shows.

The male bird has the upper part of the head and nape brownish grey with darker streaks, the remainder of the upper surface cinnamon-brown, the scapulars brighter; the croup and upper tail-coverts glossy straw-coloured; the central tail-feathers straw-coloured, the remainder dark brown, with yellowish margins; sides of face blackish-brown with pale shaft streaks; chin and throat blackish; sides and front of neck and chest pale chestnut brown, bounded by a black girdle across the breast, which, with the abdomen, is white; sides of body cinnamon, barred with black and white; flanks, thighs and under tail-coverts black; under wing-coverts and axillaries pale cinnamon; flight feathers below dusky, tail below black. Length $4\frac{1}{2}$ inches. Beak pale blue-grey; legs greyish brown; iris brown.

The female is very like the male, but the chestnut breast-belt is paler, the black girdle slightly narrower, and the black markings less defined on the flanks: the form of the beak, of course, differs as in other Mannikins and the streaking on the crown is less distinct.

The young plumage is thus described by Dr. Sharpe:—"Nearly uniform brown above, a little dusky on the head, and slightly more fulvous on the lower back and rump; wing-coverts like the back; bastard-wing and primary-coverts uniform dusky brown; quills and tail-feathers dusky brown, edged with pale brown like the back, the centre tail-feathers somewhat olive in tint; lores dusky blackish; ear-coverts and sides of face brown, with whitish shaft-line; throat ashy-whitish, mottled with dusky bases to the feathers; lower throat and fore-neck, as well as the sides of the body, flanks, and thighs, fulvous-brown; breast and abdomen isabelline, clearer white on the latter and on the under tail-coverts, the latter mottled with black bases; under wing-coverts and axillaries pale tawny buff."



CHESTNUT-BREASTED FINCH. ♂.
(*Munia castaneithorax*.)

THREE COLOURED MANNIKIN. ♂.
(*Munia malacca*.)

Mr. Gould observes:—"I had not the good fortune to meet with this bird in a state of nature, but I have been informed that it frequents reed-beds bordering the banks of rivers and lagoons of the eastern coast, and that it much resembles the Bearded Tit (*Colamophilus biarmicus*) of Europe, in the alertness with which it passes up and down the upright stems of reeds, from the lower part to the very top, a habit for which the lengthened and curved form of the claws seems well adapted."

Mr. North writes:—"This species is widely distributed over the whole of the northern parts of New South Wales and Queensland. It breeds plentifully in the extensive grass beds of the Clarence and Richmond river districts, also at Maryborough, Queensland. The nest is a large structure, in shape like a flask or bottle on its side, and the entrance, which is about an inch and a half wide, is situated at the end of a long neck, the whole being about fourteen inches in length by six inches in diameter in its widest part. It is usually built near the top of some bushy shrub, or in tangled masses of vines, and composed of grasses and the leaves of reeds, with fine stems of plants (*Gardenia* or *Lobelia* according to the district its owner frequents), being lined with finer materials—the downy tops of reeds and flags, and occasionally a few feathers. It closely resembles the nest of *Neochmia phaeton*, which I have received from Port Denison, and, like that, is often found placed among the stiff leaves of a grass-like plant, growing upon the sides of trees, in and about the edges of the scrubs. The eggs are four or five in number, of a dead limy-white colour."

I purchased a beautiful pair, of this very pretty Mannikin, from Mr. Abrahams, on April 2nd, 1894. The difference in the streaking on the crown of the head was well-defined in the sexes, the streaks being much better marked in the male bird, whilst in the female the chestnut breast-band was paler.

The song of this Mannikin is rather melancholy and weak in tone, but easily audible; it commences thus:—"Whit, whit, whit, whit," each utterance quite distinct, but all alike; then—"Wee-wee-wee-wee-wee-wee-wee-wee,—tweeo, twee-ur;" in fact it bears a distant resemblance to that of the Java Sparrow, rather than to the other more typical Munias.

I was unfortunate with my hen; which, shortly after I purchased my pair, developed disease of the brain, entirely preventing her flying, causing her also to move in a circle and fall over when excited. Though otherwise perfectly well, she was now worse than useless, for

I had to put her to bed every night in the nest-box: how she got back to the floor of the cage in the morning I cannot say; she must, I think, have tumbled out anyhow and flapped her wings to ensure a soft fall: eventually she died, and I turned her husband loose in my outer aviary.

On the 6th July, a friend imported a few of these birds from Australia, and I purchased from him three cocks and two hens, one of the latter I turned out with the widower, the others I transferred to a large breeding-cage. As these were all young birds, however, there was no immediate prospect of breeding with them. When fully adult I turned all the birds into the same aviary, but they never built systematically, and in 1896 three of them died, leaving only three cock birds alive, two of which died in 1897.

Dr. Russ says:—"Until a few years ago the Reed Finch (German trivial name) was very rare in the trade, and it has only been introduced into the Zoological Garden of London, or to Europe generally, since the year 1860. At present, it is one of the commonest forms seen in the trade, can be obtained every year, though never in considerable numbers. Like several other Australians, it proves so delicate immediately after its arrival, that the greater number die. Since, however, the remainder have excellent health for years, it is evident that these, as also almost all birds as a rule, are badly looked after during the long passage, and almost invariably arrive in a sickly condition. Moreover, many Reed Amadines suddenly go wrong, even after a long time, and in spite of the fact that they are apparently quite healthy. The cause of death, then, is invariably fatty degeneration of the liver.

"The ventriloquial long-drawn song is delivered with great zeal, and terminates in a loud high *tih!** A pair belonging to Mr. Linden, of Radolfzell, nested with good results; mine, on the contrary, allowed several years to pass fruitlessly, when at length two pairs simultaneously formed a careless nest, in a Hartz cage and a pasteboard box, of coarse nesting materials, stalks, sea-weed, fibres, dried chickweed, and lined with feathers. The young died before changing their colour."

In my opinion the delicacy of these, and other imported Finches, is principally due to overcrowding during transport; when a cage, such as is usually provided for the accommodation of some fifty birds, is tenanted by less than half that number, the losses are comparatively trifling, and the birds arrive in good health; but the sailors who

* When I wrote this article I possessed four males and three females; consequently I often heard the song, but I never heard this termination.—A.G.B.

usually import them, rarely learn by experience that over-crowding is as bad for these little creatures as for human beings. The consignment, from which I obtained my five examples, was a very small one, and all of them arrived in perfect health and plumage; in fact, they were by far the most beautiful representatives of the species that I had ever seen: they agree well with Gouldian Finches, and pair with them readily.

Illustration from living examples in the author's collection.

THE THREE-COLOURED MANNIKIN.

Munia malacca, LINN.

AN inhabitant of Central and Southern India and Ceylon, the Three-coloured Mannikin is largely imported, and consequently is one of the birds best known to amateurs. It is a very handsome species, though of the heavy build, with the stately movements, ridiculous dances, and almost inaudible song, peculiar to the typical Mannikins.

The entire head, neck, and chest of this species are jet black; the back, wings, and croup chestnut, but the primaries somewhat greyish, except along the margins of the outer webs; upper tail-coverts deep reddish-chocolate, with opalescent or silvery gloss, tail-feathers distinctly brighter, almost approaching a brick-red, but dusky in the centre, and with a similar silvery lustre to tail-coverts; breast and sides pure white, but the whole centre of abdomen and under tail-coverts, as well as the thighs, black; flights below ashy, with a narrow edging of chestnut to the outer primary; tail-feathers below greyish. Length $4\frac{5}{8}$ inches. Beak clear bluish-grey; legs leaden-grey; iris brown.

The female is decidedly smaller ($4\frac{1}{10}$ inches), the head is of a dead black, in fact the whole colouring of the upper parts is less lively, the flight-feathers much greyer, the croup paler, the upper tail-coverts and

tail-feathers far duller and with much less opalescent gloss. In addition to these characters, which can all be seen in the dried skins, Mr. Abrahams gives the character of a weaker beak, narrower at the base: this distinction, however, is more noticeable in life, the beaks of birds being usually more or less distorted in prepared skins.

Youngish males, both in size and colouring, more nearly resemble the female; but birds of the year, before their moult into the adult plumage, are rufous-brown, with the head more dusky; the flight-feathers dusky, reddish-brown externally; tail-feathers dark brown; under surface sordid buff, with the chin whitish and the throat greyish.

The Indian name for this species is "Nukl-nore": Jerdon states that he observed it "in the Carnatic, frequenting long reeds and grass, by the side of rivers, and in the table-land in similar situations, though more rare, and most numerous in the wooded region of the west coast, frequenting grain-fields in large flocks, along with the White-rumped Finch (*M. striata*, Linn.)"

"The Black-headed Munia* is chiefly found in Southern India and Ceylon, a few stragglers occurring in Central India, and even in Bengal occasionally. It is very abundant in parts of Southern India, especially on the Malabar coast, frequenting long grass by the sides of rivers and tanks, occasionally dry grain fields, and very commonly sugar-cane fields. It often associates in very large flocks. The nest is usually placed among reeds, in tanks, or in the beds of rivers; occasionally in long grass in the bunds of paddy-fields. It is a rather large, nearly round or oval nest, neatly, but loosely made of grass, with the hole at one side, this in general being very artfully concealed, by the interlacing of the fibres of grass, so that I have been puzzled for a few moments to discover the entrance; and the eggs, four to six in number, are pure white."

Hume says:—"Our Indian bird breeds in many localities in Southern India, but though the eggs have been sent to me by many correspondents, only one or two have favoured me with any notes on its nidification."

Mr. A. G. R. Theobald writes:—"I found the nests near Pothanore, in the Coimbatore District, during the latter half of October. They were placed amongst reeds growing in a small pond; they were round, with a round hole in one side for an entrance, and were composed of dry reeds and leaves of some flag-leaved grass very like those of the Cholum (*Sorghum vulgare*). The lining was composed of the

* This is Jerdon's name for the Three-coloured Mannikin; not, as one might imagine, the "Black-headed Mannikin."—A.G.B.

hair-like filaments, from the brown grass of this country. Seven is, I think, the full complement of eggs; I have never found more in any one nest."

Mr. F. R. Blewitt says:—"On the 19th July we were encamped in the open forest country, in the immediate neighbourhood of the western side of the hill ranges (branches of the great Vindhyan group), lying in the extreme eastern section of the Bhundara District.

"In a sugar-cane field, not far distant from our camp, we found five unfinished, and one all but complete nest, containing a single egg, of the Black-headed Munia. The parent birds were shot while busily engaged in finishing off the entrance of the nest.*

"This latter was nearly globular, a mass of coarse grass, lined with somewhat finer grass, between six and seven inches in diameter. It was more loosely constructed than those of *Estrelida formosa*, several of which we had found in a similar locality, about a mile distant, two days previously. Both this nest and the other unfinished ones were placed amongst, and attached to the cane leaves, precisely after the fashion of the Green Amaduvat.

"The eggs of this species, which I owe to Messrs. Carter, Theobald, and others, are of the usual *Munia* type—dull pure white, somewhat elongated, oval eggs; there is nothing, that I can see, to distinguish them from those of *M. punctulata* and *M. malabarica*, except, perhaps, that elongated varieties are more common amongst them."

Captain Legge, writing of this species in Ceylon, says:—"This fine *Munia* is common in the south of the island, particularly in the district lying between Bentota river, round the south-west coast to the Wallaway river. Between Galle, and the Kukkul Korale forests, it is found in wild paddy-fields, and small cultivated tracts of land, near the inland villages in that wooded region. I met with it close to the sea, between Tangalla and Hambantota, but did not see it in the coast-district east of the latter plain. It re-appears in the Park country; and is not uncommon between Batticaloa and Madulsima; it ascends into the hills between Bibile and Badulla, and inhabits all the region and the Uva patna-basin in considerable numbers, luxuriating in the long grass and tangled vegetation, which clothe the maze of hills, between Udu Pusselawa and Haputale. In the western parts of the Kandy country it is far less common. It does not seem to be common in the Western Provinces, except in certain localities, such as the sylvan paddy-fields in the lower part of the Pasdun Korale; there I

* This is only one, out of many recorded instances, of the cold-blooded tendency to slaughter, characteristic of the English collector.—A.G.B.

found it plentiful not far from Agalewatta. It inhabits the east coast from Batticaloa northwards, as far as Trincomalie, and the neighbourhood; but further north it appears to be rare.*

"The 'Chestnut-backed Finch' affects paddy- and grass-fields, situated among the woods and forests, and is also found in marshy land about tanks and water-holes. In the hills it is partial to the Maana-grass patnas, and those covered with tangled bushes and rank vegetation. It is very destructive in the paddy-fields of the Kandyans, necessitating the constant presence of call-boys, and the erection of all manner of scarecrows, for the protection of their crops. Like the two following species (*Munia punctulata* and *M. striata*) it is very sociable, feeding in large flocks, which are quite sufficient to inflict heavy damage in the fields of the hard-working Cingalese cultivators. It is very fond of the seed of the maana-grass, and that of various reeds and rushes which grow in swamps and marshy spots. Its note is like that of the common species, *M. punctulata*, but stronger, and its flight is also similar.

"This *Munia* breeds often gregariously. The season of its nesting lasts from May until August. In the former month I found many nests among the gigantic 'maana-grass,' and tangled 'brackens,' which cover the Uva patnas; and in the latter I found it nesting, *a number together*, among reeds near Hambantota, in company with the Baya (*Ploceus manyar?*). The nest is sometimes placed in a low bush, but it is more frequently built in grass and 'brackens.' It is a large, strongly made, globular structure, composed of the material nearest to hand, either blades of grass and roots, or strips of reeds, with a large unfinished-looking opening at the side. The interior is roomy, and in some cases very deep, and is lined with flowering grass-stalks or fine grass itself. The eggs vary from four to six in number, but most commonly do not exceed the former figure; they are pure white, rather stumpy ovals, and larger than those of its congeners."

"In India it breeds from July till October."

E. Bartlett, not being aware that this species had already received the distinctive appellation of "Three-coloured Mannikin," proposed for it the new title of "White-chested *Munia*," in order to distinguish it from the other Black-headed species. Unfortunately there are other White-chested *Munias* (though they are not so-called), and "Three-coloured" answers the purpose equally well.

* I quote this in full for the edification of those intimately acquainted with the geography of Ceylon. Personally, I must confess that most of the localities mentioned are mere names to me: Kandy and Trincomalie are, of course, familiar to most students.—A.G.B.

By the way, in reading the descriptions of all nests of the *Ploceidae*, one comes across the curious anomaly of a sphere having sides. Can a spherical nest have a hole at the side? It can have an entrance from outside to inside, but it must be in the front, whichever way the nest is turned, because the entrance alone indicates the front.

Dr. Russ says, that he first received this species after the appearance of his *Handbook*, and in spite of the fact that he kept several pairs in his bird-room, he never succeeded in rearing a single brood from them. This has also been my experience: I have had them pair, build and lay in a cigar nest-box, yet none of the eggs have ever been hatched; but I have found this equally the case with all the other Mannikins, they are always building and laying, even pulling other birds' nests to pieces to add to their own; they are always ready to pair with other allied species, but when sitting they seem restless, easily disturbed and, at times, spiteful towards other birds which approach their nests, springing off their eggs to attack them, and that with such eagerness, that the eggs are frequently kicked out of the saucer-shaped receptacle into the corners of the box, where they are left to dry up. Probably the best chance of breeding the species, of typical Mannikins, would be to keep each pair in a separate spacious breeding-cage, but with such common and cheap birds, it seems hardly worth while to devote a large cage to them, when it might be more profitably employed for breeding valuable species: nevertheless, in the case of the Three-coloured Mannikin, the beauty of the bird might tempt one to do so.

Dr. Russ asserts that the Three-coloured Mannikin is a harmless, loveable little bird: my experience is, that in a cage with many other Mannikins it is absolutely innocent, but, when building or sitting, it is quarrelsome in the extreme; it will fight over a particular hay-stalk, when there is a heap to select from, will fly after some little Waxbill which is carrying a bent to its nest, seize the free end and jerk it violently away: its fights with other Mannikins are harmless, because they consist entirely of blows, delivered by each combatant on its opponent's beak; but, when an attack is made upon a Waxbill, they are delivered on the crown of the head, a single blow sometimes sufficing to kill.

Illustration from living specimens and skins in the author's collection.

THE BLACK-HEADED MANNIKIN.

Munia atricapilla, VIEILL.

THIS very common, but handsome little bird, inhabits the Himalayas, Central India, Burmah and the Malay Peninsular: in colouring it is so precisely like *M. malacca* in both sexes, with the exception of the white of the under-surface being replaced by bright chestnut, that it would be mere waste of space to give a full description of it. So far as I am aware, however, it never attains to the size of old males of *M. malacca*.

The young are brown, slightly tinted with chestnut on the wing-coverts, the head somewhat greyish, with the cheeks and under parts dull buff-coloured. At the first moult the adult colouring appears, excepting that the black median longitudinal belt on the breast and abdomen is not at all, or only slightly indicated; anyhow that was the case with young birds which my sister brought me from India, on April 13th, 1887: at the second moult it appeared.

As already stated, this was one of the first species of Foreign Finches which I kept, and I have never since been without it. It is one of the hardiest, and most long-lived, of all the species of *Munia*; though, in this particular, it has to yield the palm to the White-headed Mannikin (*M. maja*).

Jerdon calls this "The Chestnut-bellied Munia," and states that it replaces *M. malacca* in the north of India, "being found throughout Lower Bengal, and all along the foot of the Himalayas as far as the Dehra Doon; and also in some of the more wooded adjacent districts, but it would appear to be rare in the open country of the N. W. Provinces. I have seen specimens from the Eastern coast north of Madras, and Mr. Layard procured it in Ceylon, but it is certainly rare in Southern India. It is much more common in the countries to the eastward, Assam, and Burmah as far as the Tenasserim provinces, southwards of which it is replaced by *M. sinensis*, which wants the black abdominal stripe altogether."

There seems, however, to have been some confusion in the identification of the species when Jerdon wrote. He continues as



BLACK-HEADED MANNIKIN. ♂.

(*Munia atricapilla*.)

WHITE-HEADED MANNIKIN ♂. ♀.

(*Munia maja*)

follows :—"I have always found its nest fixed to reeds or long grass," and that is all he tells us about it, with the exception of quoting Mr. Frith's account, and assuring us that the latter probably refers to the nest of *M. undulata*.

Mr. Allan Hume says :—"According to Mr. Hodgson the Chestnut-bellied Munia breeds in the lower valleys and cultivated plains of Nepal, in open jungle or brushwood, forming a large globular nest in the midst of bamboos, thick bushes, or grass, on or close to the ground, composed of dry grass or straw loosely twisted together, and lined with finer rice straw. It lays from June to August four to six small, oval, pure white eggs."

Captain W. V. Legge observes :—"in North-eastern India it is, according to Mr. Inglis, common during the rains, breeding there in June, July, and August ; in Upper Pegu, Mr. Oates records it as likewise common ; but to Tenasserim it is only a summer visitant, Mr. Davidson having observed it there from March until August."

"In habits and voice, Mr. Davidson remarks, "they resemble other Munias, going about in larger or smaller flocks, and feeding on the ground, chiefly on the grass seeds." Mr. Oates says it affects elephant-grass and swampy places in preference to others.

"The breeding season of this handsome Munia in Bengal, Burmah, and Cachar is from June until September ; but in Tenasserim, further south, Mr. Davidson speaks of their laying in April and May. In Pegu, Mr. Oates says, it breeds in elephant-grass, attaching its nest to two or three stems at a height of four or five feet from the ground. It is "a loose mass of grass, spherical, cylindrical, or heart-shaped ; the inside is lined with finer grass, the flowering ends being brought forward to the entrance, which is small and difficult to find." In 1874, Mr. C. Parker found it nesting in long grass near the top, the nest being a very conspicuous object ; but in the following year, owing to the grass having been cut down, they selected prickly date-palms and small pines to build in. The eggs vary from two to five in number, and are elongated glossless ovals."

According to Mr. J. Scully :—"This Munia is common in the central part of the Nepal Valley, from the end of May to October, frequenting rice fields and gardens. A nest taken on the 13th July, in the residency grounds, was placed in a thorny hedge ; it was a large globular structure with a trumpet-shaped entrance at one side ; it contained five white eggs, slightly set."

Messrs. Motley and Dillwyn say :—"In Labuan, which is comparatively but little cleared and cultivated, this pretty Finch is rare ;

on the mainland of Borneo, however, it is a very common species, and immense flocks of them assemble and often clear a paddy-field in a single day; when feeding they are never still for a moment, and it is very amusing to watch them hanging on the leaves and stalks of the grass in every possible direction. Their nests are built in long grass by the sides of the streams."

Dr. Russ gives but little information respecting this species, he says that for a long time it was not procurable in the German bird-market, although abundantly in Paris. At length, however, Hagenbeck imported a considerable number, and now they are almost always obtainable in the bird-shops: he continues as follows:—

"In my bird-room, in the course of time, only two broods were obtained from one, and only two young were fledged and these disappeared, so abruptly into the scrub, that I could give no further account of them. For a nest, each time, the roomy habitation of a Diamond-bird was utilized, and merely narrowed by grass-stalks dragged inside."

My own birds built either in a German canary-cage, or in a cigar nest-box, dragging in a quantity of hay, and over-arching the saucer-shaped depression; but even when the nest was apparently completed, the birds were constantly fussing about, pulling out a straw and poking it in again, and never really settling down to the duty of incubation. In one instance, a pair exchanged partners with the White-headed Mannikin, and all four birds nested in company in the same box; unfortunately, without result; nevertheless, these birds are at times so ridiculously cheap, that it is really hardly worth while to attempt to breed them. About midsummer, in 1897, I purchased half-a-dozen perfect examples, offered to me at the astounding price of sixpence a head.

In common with the other species of *Munia*, these birds live well on white-millet, canary and paddy-rice; they also delight in spray-millet and grass in the ear: a patch of turf gives them great pleasure. All these Mannikins are inveterate bathers, so that their plumage is almost always perfect; but they seem to be very careless about keeping their nails trimmed; thus their long and often twisted claws get caught up in the wire of the aviary, and are liable to keep them dangling until they die, should their owner not be at hand to release them: an aviarist who, after an early visit, locked up his bird-room until his return from business in the evening, would be most liable to losses from this cause; my own birds have always been quickly released, and their nails promptly cut, whenever they have become entangled in the netting of an aviary.

As already stated, the song of this, and the allied species, is a kind of vibrating hum, interspersed with grating sounds not unlike the creaking of a boot, and finishing up with a thin long-drawn whistle (a sound only to be produced by whistling the highest producible note through one's teeth); the beak is opened extravagantly wide, the neck much elongated, and the head bent slightly forwards. At the end of the performance, the head drops back suddenly into its normal position, the neck being shortened with a jerk, as if from exhaustion.

Illustrations from living examples and skins in the author's possession.

THE WHITE-HEADED MANNIKIN.

Munia maja, LINN.

THIS species differs far more in the sexes than the two preceding: it is an inhabitant of the "Malayan Peninsular, from the Wellesley Province southwards, Sumatra, Java." — *Sharpe*.

The adult male above is greyish chocolate-brown, the croup and upper tail-coverts glossy deep maroon, the tips of the feathers of the latter more fiery in tint; tail-feathers dark-brown, edged with deep red, the central ones red almost to the shaft, flight feathers dusky excepting on the outer edges, which are coloured like the wing-coverts and back; head white, stained with brownish buff on the nape, neck, and centre of the throat; chest deeper, greyish-fawn; sides deep chocolate; remainder of under-surface black; under wing-coverts fawn-coloured, flights below mostly silky grey; tail feathers below deep brown. Length $4\frac{1}{2}$ inches. Beak pale bluish-grey, darker at base; legs deep leaden grey; iris dark brown.

The female, when fully adult, is decidedly larger than the male ($4\frac{1}{4}$ inches) deeper-coloured and somewhat greyer throughout; the head is not white, but smoky whitish; the chin, throat and chest as well as the front of the breast greyish-fawn, or mouse-brown; the black of

the hind-breast and abdomen duller than in the male. Moreover, as originally pointed out to me by Mr. Abrahams, the beak is narrower at the base and more tapering than in the male.

As the female, from which I have taken the preceding description, died at the age of eighteen years, it is possible that she may be a little darker than younger birds; but the sexes are always easy to distinguish by the colouring of the head alone.

Young birds are rufous-brown, yellower on the croup and upper tail-coverts; the face and chin whitish; the under parts slightly paler than the upper.

The Malays call this bird "*Petap Whobun*"; in Sumatra, however, it bears the name of "*Pipit*," and in Java "*Bondol*."

Edward Bartlett gives the following notes respecting *M. maja*:—"The White-headed Munia, or so called Maja Finch, appears to be one of the earliest and best known species of this insular group of Asiatic Weaver-birds, and from a very remote period it has been brought to Europe, in great numbers, by trading and other vessels, which touch annually at many of the islands in the Straits of Malacca, or Malayan Peninsular, where this bird abounds, especially in those islands where rice and smaller cereals are cultivated to any great extent.

"This bird, like all its congeners, is exclusively a dry seed eater, and congregates in enormous flocks on the paddy-fields when the seed is ripe, and after the harvest season, when the wild seeds have attained maturity, it finds subsistence until the following harvest. It is at this period of its existence (and after the breeding season), that it is procured in vast numbers, and shipped to various parts of the globe; the greater number come to Europe, although the natives retain them as cage pets, among many others of the same family.

"Lieut. H. R. Kelham tells us:—"This little White-headed Munia is very common throughout the west of the peninsula, including the islands of Penang and Singapore. When the grain is ripe, it is to be seen in countless numbers, in the paddy-fields. On being disturbed, it rises with a feeble, twittering cry, the flocks whirling and twittering over the top of the paddy, like clouds of dust on a road when the wind is blowing. It is commonly known in the Straits as the 'cigar bird'—a capital name; for when flying, its white head, brown body, and small size give it very much the appearance of a cigar with the white ash on it."

Reichenbach remarks in his *Singvögel*, published in 1861, that "these birds have often been brought to us in modern times from East and South India, more especially from Sumatra and Borneo.

They are great favourites, more for their gentleness and pretty manners than for their weak voice. I received lately from Sumatra four little pairs, with their nests and eggs, and a fifth nest was already to be found in Thienemann's collection. The long melon-shaped nest is built between reeds and sedges; it has an oval opening of 5 cents. in diameter. It is composed of grasses of the millet species, loosely and untidily woven together, and wound round outside with a quantity of narrow and broad blades of grass, and thickly lined again inside with very fine silky-haired grasses twined together. The two or three eggs are dull white."

My own opinion, based upon two or three pairs which I have had from time to time, is that—among such clumsy awkward-looking birds as the typical Mannikins (by which I more particularly mean the species of the genus *Munia*), the White-headed birds are about the least interesting; but as regards their longevity, let them once become thoroughly acclimatized and there is no knowing how many years they may live; provided that their owner is on the look out to release them and cut their curly claws, whenever they chance to get hung up in the wire of the aviary: for it is one of the peculiarities of the species of *Munia*, that their claws seem to grow in captivity far more rapidly than they can wear them down; so that the birds are often found hanging by them to the wire-netting of an aviary and vainly struggling to release themselves.

The male of my last pair of *Munia maja* died at the age of (at least) seventeen years, and the hen a year later; they had been in the possession of the gentleman who sold them to me for ten years, before I bought them, and the hen died seven years later: whether the pair was more than a year old when purchased, we do not know; but both birds were in adult plumage.

As regards breeding in captivity, possibly a single pair in a large flight-cage would do so without trouble; even in a large aviary, with many other birds, they readily build in a cigar-box and lay, but my hens never succeeded in hatching any of their eggs; my last pair on one occasion exchanged partners with a pair of Black-heads, and all four busied themselves in the construction of a single nest; but I think they interfered with one another, for the eggs got kicked down among the material forming the sides of the nest, and there I found them, dried up, when I cleaned out the box a month or so later.

Dr. Russ says:—"The pairs which existed in my bird-room inhabited a very thick bush over the stove, at every sound whisked immediately into their lurking place, were often not to be seen through-

out the day, and could only be traced by their monosyllabic whistled call-notes. At the same time, however, they by no means showed themselves to be tempestuously wild. Gradually, I discovered that they zealously carried stuff into the reed and grass-thicket on the stove, yet at all times only nested in a desultory manner. This also took place so secretly, that it invariably was discontinued, if I or any other person was present in the bird-room, and I was only able to observe it if I remained there motionless for a considerable time. At this time, Alexander von Homeyer visited me, whose practised glance at the behaviour of the birds, at once discovered that they were nesting up above there. Some days later I investigated and, indeed, found a nest standing in the belt of reeds, which was formed of coarse nesting materials carelessly thrown together. The foundation consisted of thick grass-stalks, strips of paper, moss, and the like, dragged together, and upon it a very roomy dome, of somewhat more flexible stalks, formed with a clumsy wide-open entrance, which led almost from above downwards, and lined internally, almost entirely, with tufts of cotton-wool. *The laying* consisted of three eggs. *Duration of incubation* twelve days. The young first left the nest the twenty-fifth and twenty-sixth days. At the very commencement of the incubation, the old Nuns began to eat scalded seed and ants' cocoons, with yolk of egg, and upon this they principally fed the young.

The young plumage above is fawn-brown, below dull brownish-white, the little beak shining black. These youngsters were so helpless that, for almost eight days after they left the nest, they sat apart and motionless on the earth, in the darkest corners and in thick scrub. Then, however, they began to fly quickly and well.

The change of colour first commences after four full months, as follows:—isolated feathers on the breast and neck change into the beautiful glossy brown, whilst the back part of the body gradually darkens and, little by little, becomes brownish-black. The young look very extraordinary dappled white and brown birds, during their change of colour. Whether, in spite of numerous experiments, a brood has been developed elsewhere, I am quite unable to say. Mr. Linden has indeed seen one take flight in his aviary, but, unfortunately, has communicated no details of it.

The love-sport of the male is especially comical. Both birds sit for a considerable time quietly close together upon a branch, and only now and again utter their short piping call-note. Then the male raises himself laboriously, stretches his head obliquely upwards, spreads his short tail, and commences an extraordinarily zealous song, in which

one sees beak and throat in most industrious motion, but which is not accompanied, as in the Ribbon Finch, by an up and down hopping dance, but only by a gentle, and almost automatic movement of the head from side to side. I, however, strove in vain to hear this song."

Dr. Russ then continues to expatiate upon the zeal with which the bird sings, and the impossibility of hearing it. Well, in an aviary with a sloping roof, it can be quite distinctly heard: it is, like the song of the other Oriental Mannikins, a very poor performance; a vibration, such as one might produce by springing a wire fixed upright in a wooden block,—a half metallic humming, followed by about four sounds like the creak of a boot when the wearer steps deliberately (to prolong the sound) and lifts his foot suddenly at the end; finally, an extremely thin whistle, only to be imitated by a person with perfect front teeth: I have heard it many hundreds of times.

After this performance, the male bird generally gives the female a peck, as much as to say—"What do you think of that?" and she, apparently offended by his familiarity, raises herself promptly and faces him: then each hammers the others beak three or four times, the hen flies to another branch, the cock follows, sidles up to her, and both relapse into silence and stupidity, perhaps, for some minutes, after which the whole performance is repeated. After pairing also, there is frequently a stand-up mimic fight between the sexes; but the disputes of these birds, even when earnestly engaged in, seem never to be in the slightest degree injurious: only when defending their nests do they become dangerous, using their powerful beaks like picks upon the heads of their actual or supposed adversaries.

Illustrations from skins of specimens formerly living in the author's aviaries.

THE JAVA SPARROW.

Munia oryzivora, LINN.

SPEAKING as an aviculturist, I should have preferred to call this Finch *Padda oryzivora*: it is, to my mind, quite unlike a typical *Munia*, in colouring both of body and bill, in the swollen base to the upper mandible of the male (which is far more defined than in *Munia*) in its clear song, with liquid trills, and in its more Weaver-like courtship. Unlike the true Mannikins, its claws are not incessantly growing too long, and thus endangering its life in an aviary. The home of the Java Sparrow, also known as the Rice or Padda bird, is in the islands of Java, Sumatra and in Malacca; but it has been introduced into many other countries, and thriven there amazingly. Being abundantly imported into Europe, and not difficult to breed when crossed with white blood, the Java Sparrow is usually one of the cheapest species in the bird-market.

The prevailing colour of the Padda-bird is soft pearl-grey, the primaries, excepting at their outer edge slaty-grey; upper tail-coverts and tail-feathers black; head black to the nape, a broad patch of pure white on the face and cheeks, which, however, is sometimes entirely lost in a single moult,* abdomen dove-grey, almost ashy; thighs and under tail-coverts white; tail below black. Length $5\frac{1}{2}$ inches. Beak rosy pink, paler at the tip, legs rose-pink; eyelid red, iris chestnut.

The female is usually a little smaller than the male, and (as Mr. Abrahams has pointed out) has a narrower, more tapering beak, less swollen at the base.

Owing to the carelessness of taxidermists in labelling skins, when both sexes are given to them to prepare simultaneously, these differences sometimes appear to be fallacious; but anyone who has kept and bred Java Sparrows, can readily detect an error, involving the transposition of the sexes. It is in this way that the scientific ornithologist is handicapped: he feels compelled, in all cases where

* Mr. Abrahams tells me that this is due to the bird having been pecked on the face by its companions. This is just the opposite to what one would have expected to occur, but it only shows that all rules have exceptions.—A.G.B



JAVA SPARROW
(*Munia oryzivora*)
wild form ♂. white var ♀.

the sexes closely resemble one another, to trust implicitly to the sex mark on his labels; he, perhaps, discovers the actual sexual distinctions, but having two males or two females differently sexed, he concludes that the characters are valueless: but the breeder who pairs his birds on these differences, and raises progeny from them; knows them to be perfectly reliable.

Bechstein says that the song of the Java Sparrow "is very monotonous, and consists of two notes "*Dirr! Dirr! Dehi.*" As a matter of fact, the song of the wild bird is seldom heard, excepting when the male is paired up with a female for breeding; consequently, in all probability, Bechstein never heard it. In the same manner some writers, who have only heard the little *strophe*, which is the call-note of the male *Liothrix luteus*, assert that even this prince of Accentors is a poor singer. However, the Java Sparrow is not a particularly grand performer; his song consists of a metallic whistling which sounds like "*Torcumtee, turcumtong; torcumtee, turcumtong; torcumtee, turcumtong; whirri-urra-urra*"; the last being a clear water-bubble trill.

The song of the white variety is very different:—" *Tseow, tseow, tseow; tsee, tsow, irri-irri-urra; chow, chow, chow, chow cheea; whirri-hurra-urra-irry-irrihu*": the long words being true water-bubble trills: its call-note also is "*chyup*" in one syllable, and its fighting note sounds almost like the worrying growl of a small dog—a harsh "*grrrrrrrh*," often much prolonged.

The native name for the Rice-bird in Java is "*Glate*"; in Sumatra "*Gelatik*," and in Bengal it is called "*Ram Gira*."

From the many notes on the wild life of this charming, though somewhat heavily-built bird, I select the following:—Dr. H. A. Bernstein says:—"Just like our European Field-Sparrows the Rice-bird inhabits exclusively cultivated tracts of land, and here he is very commonly to be seen. During the time when the rice-fields (*Sawah's*) are placed under water, that is in the months November till March or April, when the sown rice is growing up and ripening for harvest, the Rice-birds live in pairs or in small flocks in gardens, villages, woods and thickets, where for food they have the seeds of various plants, several small fruits and probably insects and worms, for I have frequently seen them on country roads, &c., looking about on the ground where it was hardly likely they could find anything else. As soon, however, as the rice-fields begin to turn yellow, and are laid dry by drawing off the water, they resort thither, often in large flocks, and not uncommonly do a considerable amount of damage, so that

every kind of trouble is taken to drive them away. In neighbourhoods which suffer specially from these feathered thieves, one, or if the field is large, several little watch-houses are erected in the middle of the field, resting on four high bamboo stalks, whence numerous threads run in all directions to thin bamboo sticks, set up at certain distances from one another, through the whole field: to these threads are hung large dry leaves, gay rags, dolls, wooden clappers and such like things. Now when the person sitting in the little watch-house, like a spider in a web, pulls the threads, at the same moment all the dry leaves rustle, the dolls shake, the clappers sound and the unbidden guests fly away frightened. Also, after the harvest, the birds find their table well spread in the rice-fields lying fallow to the commencement of the rainy season, that is till towards the beginning of November, as numerous acres not only lie fallow, but also all kinds of weeds spring up among the stubble, in an incredibly short space of time, whose seeds quickly ripening afford them a welcome nourishment. At this time they are fairly plump, and well nourished and offer, especially the young ones, a favourite dish, on which account they are snared in large numbers.

"I have several times found the nest of *Munia oryzivora*: sometimes at the summit of various trees, sometimes among the numerous creepers which cover the stems of the areng palms. They vary in size and form, according to their position: whilst those attached to trees, are for the most part, larger and possess, on the average, a fairly regularly half ball shaped form, those placed among creepers on the stems of areng palms are smaller and of a less decided, irregular form, only slightly hollowed out in the centre. All nests, however, are almost exclusively composed of the stalks of various grasses, which are not very firmly twined together, so that the whole build is of no great solidity. The number of the shining white, somewhat long-shaped eggs, varies between six and eight in the nests found by me. Their diameter lengthwise amounts to 21 mill., their greatest diameter through the middle 14 millim."

Mr. Allan Hume says:—"This species, the well-known Java Sparrow, a native of that island, but now naturalized in Mauritius, Ceylon and other places, has naturalized itself also in the neighbourhood of Madras, whence I have had many specimens, killed wild, as well as the eggs sent to me by my friend the late Captain Mitchell. He found a nest near Madras, in August, containing five eggs. It was placed like a *Munia*'s in a thorny bush 7 or 8 feet from the ground. The nest was globular and very large, chiefly composed of

fine grass, but with a few broad-bladed leaves of millet intertwined. The entrance small, circular, and lateral.

"The eggs were very regular ovals, pure glossless white, and varied from 0.7 to 0.75 in length, and were (all the three sent me) 0.55 in breadth."

Dr. Russ says:—"One of the most anciently imported of the Ornamental Finches; Vieillot had a 'Padda for seven years in a cage.' Singularly enough, however, it was only bred in the most recent period (since 1870), first by Dr. Stölker, of St. Fiden, and after that by many others. *Nest* careless, yet usually domed, of straw, hay, feathers, and the like, in nest-boxes, cigar-boxes, and other enclosures. *Young plumage*: dark mouse-grey, underside clear yellowish-grey; flight and tail-feathers dark grey, no clear white defined cheeks; beak black, waxy skin-glands white; eyes black, margin yellowish tawny-grey; feet pale flesh-coloured. *Change of colour*: at eight days after flight the plumage begins to grow brighter, the upper surface gradually poppy-blue-grey, below reddish; the beak after five weeks flesh-red; the eyes already brownish-red, the feet reddish flesh-coloured; after moulting, like the old birds in colouring and size (Dr. Stölker).

"*Song* like the ringing of diminutive bells.* Enduring, always smooth and neat, in a cage as in the bird-room harmless and peaceable. Breeding difficult, not remunerative.

"The snow-white Rice-bird, with its shining rose-red beak and feet; doubtless one of the most beautiful domesticated birds, come in increasing numbers into the trade; from the cleanest purest white to blue-clouded and wholly pied. Has been kept in a cage in Japan for hundreds of years, and selected as a fancy species by patient breeding, like the white House-Dove and yellow Canary-bird, also abundantly bred among us. Development corresponding with that of the original species; but nests more easily and with greater certainty."

With regard to the breeding of these two forms of the Rice-birds, my experience does not coincide altogether with that of Dr. Russ. From time to time I had pairs of the wild type, which never showed any inclination to breed: then I purchased, what was supposed to be, a pair of the white variety, and placed them in a roomy breeding-cage, with a large nest-box hung up in one corner. The two birds were always fighting, one invariably went to roost in the box and the other on the top of it. Sometimes the outsider would suddenly enter the box; then there was a battle royal, no end of growling, flapping of wings and knocking of heads against the woodwork. Then just when

* This evidently refers to the "*Torcumtee, turcumtong*" part of the wild bird's song.—A.G.B.

one expected to see the combatants emerge in a ragged, bleeding, and half dead condition, out they would pop, as smooth and trim as though they had been engaged in preening one another's feathers, faultless in plumage. One would now descend to the seed pan to feed, and the other would sit on the perch and sing.

Of course I soon discovered that I had two cock birds, so I wrote to Mr. Abrahams to send me a pair. With the latter there was no trouble, excepting that they would pluck out their feathers to add to the nest. They had plenty of nesting materials, but often, when I wondered that they never hatched their eggs, I have taken down the box and discovered that it contained nothing but a little dirt and four or five dried up and partly incubated or broken eggs. At last, in 1893, they brought up one youngster, its upper surface entirely pearl-grey, its under parts white, beak and legs flesh-pink: at the first moult the grey wholly disappeared.

About midsummer, so far as I can remember, I turned this young bird into my Weaver aviary, where I had a single fine cock bird of the grey (or wild) type; the two quickly made friends, and though I subsequently turned in my two unpaired white males, the young white female stuck to her first choice. On the 3rd February, 1894, I heard the cries of young birds in my Weaver aviary, and soon discovered that the pair of Java Sparrows was bringing up a family: three weeks later five young birds left the nest, one being coloured like an ordinary wild bird in its nestling plumage, with black beak and all complete, two somewhat paler, with partly black beaks, and two resembling the young plumage of their mother—grey and white, with rosy beaks and legs. About three days later, my pair of white Java Sparrows were heard feeding a youngster, which left the nest three weeks later and resembled a wild bird in its first plumage.

Now it seems to me that when birds go to nest, lay and hatch out, without one's knowledge; and bring up a family of five sturdy youngsters on paddy-rice, and the soft food put into the aviary for the benefit of a *Liothrix*; they can hardly be said to be difficult to breed.

The presence of *Liothrix luteus* in my Weaver aviary, might have been expected to be prejudicial to the rearing of any young birds, on account of the proneness of that Accentor to rob nests of their eggs: nevertheless, I have reared Canaries in that aviary, although the eggs were often uncovered, immediately below the branch on which he perched.

After the young birds in the Weaver aviary had left the nest, I cleaned out the nest-box, and gave fresh nesting material; but, so far

as I could see, both parents seemed to be frequently flying about, and I had no idea that the hen had again deposited eggs and incubated them, when on the 1st April I heard the strong voices of a second family being fed; these left the nest about twenty-four days old and were attacked by the first family, which I had to remove to a cage.

Meanwhile, the White Java Sparrows set to work, in earnest, to build a better nest than they had ever previously constructed, and in this four eggs were deposited; the young bird, however, persisted in entering the nest in spite of its parents; I, therefore, took it away, and placed it in a breeding-cage with my young widowed Ribbon Finch, a bird about eighteen months old.

Later in the year, I again heard young birds in the Weaver-aviary, caught my second family of five youngsters, and placed them in a flight-cage with the first family. The third nestful consisted of four, one of which died soon after it left the nest. After this the parents seemed to be satisfied with what they had accomplished, and (for the time) left off breeding. I, therefore, again thoroughly cleansed their nest-box and replaced it. The White pair in the breeding-cage did not attempt to breed a second time, and I eventually turned them into the Weaver-aviary, and gave up their cage to a pair of Sharp-tailed Finches. Later in the year, I turned the latter into my outer aviary, and gave their cage to a pair of the young Java Sparrows, whose heads were almost wholly white, and their general colouring lighter than in the majority of their brethren. The young hen began to lay towards the end of September, its age being probably about eight months; the first two clutches of eggs got broken, with the exception of one which she covered up with nesting-material and which hatched out, but was not reared.

In October, the pair in the bird-room, again went to nest and, about the 15th November, six strong young birds took wing, having been brought up in a genuine cigar-box, in which they must have felt somewhat cramped. These young birds I, very unwisely, left in the bird-room with the parents, the consequence being that two nests of young birds which flew in January 1895, were pecked, one by one, as soon as they flew by these six little ruffians, their heads being literally skinned.*

* I saved only three out of seven. On March 28th, and two following days, four young left the nest in one of my cages; their parents being both grey birds reared in 1894, and in May I reared seven more from two nests. Late in the year all my paired birds nested again, so that (from first to last) I reared 21 birds in 1895, and in February 1896, young birds again began to leave the nests in my bird-room. I reared altogether 21 that year, but only about half a dozen in 1897. My old cock bird, curiously enough, lost his life in 1896, by getting hung up by the claws in a furze-bush, a very unusual death for a Java-Sparrow.—A.G.B.

The love-dance of the Java Sparrow is very ludicrous; he bends his body like an arch over the perch, turns his head sideways towards the female, and lifts himself jerkily up and down, singing all the while, and gradually sidling up to his mate.

Illustration from living specimens in the author's collection.

THE MAGPIE MANNIKIN.

Amauresthes fringilloides, LAFR.

THE so-called "Pied Grass-finch" inhabits Africa, with the exception of the north-east, south-west and south of the continent. This is, of course, a true Mannikin and is more correctly named by the French (*La plus grande Nonnette* and *None grande*) than by the English;* for, though the whole of the Prachtfinken or Ornamental Finches may be correctly designated "Grass-finches"; the more typical forms of the latter group, from an aviarist's point of view, are represented by such genera as *Erythrura*, *Poephila*, *Steganopleura*, *Taniopygia*, *Amadina*, *Stictoptera*, and perhaps *Aidemosyne*; though the latter is without doubt very close to the true Mannikins, with which, indeed, it interbreeds.

The upper surface of this bird is deep chocolate-brown, the front of the back, scapulars and median wing coverts with white shaft-streaks; the head, including the sides of the neck and throat, the croup, tail-coverts and tail-feathers black, glossed with steel-green; outer tail-feathers with white fringe to the inner web; under surface of body from the throat white, somewhat sordid towards the vent; a large purplish-black patch on the sides of the breast, sides of body with a clear liver-brown patch streaked externally with black, and edged with white; thighs partly black; under wing-coverts and axillaries dull buff. Length $4\frac{1}{2}$ inches. Beak large, and Weaver-

* The dealers' name of "Magpie Mannikin" is confusing, from the fact that the Bengalee has been called the "Pied Mannikin"; nevertheless I prefer to use it.—A.G.B.



MAGPIE MANNIKIN . ♀ . ♂ .
(*Amauresthes fringilloides*)

like in character, the upper mandible dark blue, the lower mandible clear leaden grey; legs leaden grey; iris dark brown.

The female is very slightly inferior in size, with a smaller brown patch on the sides of the body.

I have been unable to discover anything respecting the wild life of this bird; but its habits, probably closely resemble those of the other Mannikins.

Dr. Russ objects to the name *fringilloides*, as a barbarism, and proposes to call the bird *Spermestes fringillina*. He says, that he first received a single example in 1868: it had been supposed to be allied to the Weaver-birds; but, when he saw it at once make friends with Bronze Mannikins, he felt satisfied that it must be an Ornamental Finch. He continues as follows:—

“After a short time Miss Hagenbeck received a large consignment of Giant-little-Pies, and now they gradually took up their abode in all bird-rooms. They first went to nest with Mr. Emil Linden, then Count York, of Wartenburg, and in my bird-room. The bird’s mode of life, especially the development of the brood, at once proved, quite conclusively, that it was one of the Ornamental Finches. The pair is always inseparable, and the male performs precisely the humming, hopping love-dance of the Little-pie (Bronze Mannikin). *The nest* is constructed in any kind of cavity, or even openly in a bush; in the latter case, tolerably skilfully built in a rounded form, and with a narrow lateral entrance hole, of bast, thread and stalks, and lined with blades of grass, as well as little soft rags, wadding, etc. *The laying* consists of four to six pure white eggs. *The young plumage* above is dull uniform chocolate-brown, below whitish grey-brown; beak black; feet blackish-brown. *The change of colour* begins in about the sixth week, in that the plumage above grows darker, and below lighter, until finally pure white. After the first year the feathers of the head first show the metallic gloss, and then also the yellow-brown spot on the sides, which is very gradually developed (see scientific description), is fully defined. Many pairs nest readily and productively, others on the contrary, year in, year out, make no attempt at nest building.”

The German name “Rieseneisterchen” seems a contradiction, unless the “chen” be accepted as a diminutive of affection, and the name translated “Darling Giant Magpie,” which would be absurd.

Early in 1896 I purchased a beautiful pair of this species, which I turned into my largest flight-cage, in the hope of breeding from them. At first they quarrelled so incessantly that, thinking I might have secured two males, I caught and carefully compared them; I was

then at once satisfied by the marked difference in the form of their beaks, the tinting of the abdomen, and a recognizable disparity in size, that I had a genuine pair. I now restored the birds to their cage, and soon afterwards they became friendly, and even carried a little hay into a box. Up to the end of April, 1898, no further attempt at nesting has been made.

The note of the bird is ridiculous, considering its size, for it merely consists of an oft-repeated plaintive little whistle, not unlike the call-note of a *Zosterops*.

THE TWO-COLOURED MANNIKIN.

Spermestes bicolor, FRASER.

THIS little Mannikin inhabits West Africa, from Sierra Leone to Dahomey. According to Dr. Russ it is only occasionally imported, a few pairs at a time.

The whole upper surface of this bird is black, glossed with green, excepting on the flights and tail-feathers; the chin, throat, chest, and sides are also black, glossed with green, the edges of the black at the sides being irregular, having a barred character; the remainder of the under surface of the body is white, the flights and tail-feathers below greyish-black. Length $3\frac{1}{2}$ inches. Beak leaden-grey; legs dark leaden-grey; iris black.

I only once possessed this species for a single night; it was caught by a policeman in South Kensington. The poor little mite had probably escaped from some cage or aviary in the neighbourhood, and was being mobbed by Sparrows: as it was probably faint for want of food, it was easily captured, and brought to me; and, within five minutes, it was greedily devouring millet and canary-seed.

I took the bird home, and turned it into a flight-cage with Waxbills; it seemed to be quite happy and contented, when I left it for the night; but in the morning I found it dead. The skin was preserved



BRONZE MANNIKIN. ♂.
(*Spermestes cucullata*)
TWO-COLOURED MANNIKIN. ♂.
(*Spermestes bicolor*.)

and was pronounced by a friend to be that of the Bronze Mannikin, and it was not until years later, when two specimens of the latter species had died, and I was able to compare the skins, that I discovered the blunder.

The wild life of this bird is probably similar to that of the Bronze Mannikin; but remarkably little seems to have been observed, by travellers, of the habits of the smaller West African Finches: they seem too frequently to have been content to destroy life, without one thought for their victims, or one desire to know anything of their domestic economy. In short, to be a first-rate collector, a man needs only to be a good shot, and to know how to skin well; he must set aside all sentiment, all compunctions; and, with these qualifications, though he be as ignorant as any savage (with the one exception of being able to jot down locality, date, colours of soft parts and probable sex) he may succeed, in not only making a comfortable living out of his collections, but in being applauded by all into whose hands they come. I do not find fault with such a man; but surely he who visits the haunts of these tiny feathered beings to learn their life history, and subsequently records it for the instruction of his fellows, is deserving of infinitely greater honours; he alone is the Naturalist.

As regards the sexing of birds, I am certain that the notes taken by collectors are often very misleading: I have known taxidermists, supposed to have sufficient experience to be able to sex a bird correctly, to deliberately label a male as a "female" and assure me that they had proved the sex of the bird by dissection; yet I had myself proved the sex, by breeding from it, in captivity with a hen. The average collector is not only just as liable to blunder in his dissections, but he may be misled by seeing one bird feeding another, label them (if of the same size but differing in colours) male and female, or (if one be a little smaller than the other) male and young. It seems certain that, by some such error, many young cock birds in collections are labelled "female" or females "young." A good collector may shoot so many birds in one day, that he will barely have time to make them all into skins, and certainly no time to ascertain their sex by dissection: in such cases, he does incalculable mischief when he sexes them by guesswork, or by some reminiscence of their behaviour, before they were killed.

Dr. Russ says of *S. bicolor*:—"In its entire behaviour it resembles the little Magpie (Bronze Mannikin) yet does not go to nest so readily, or with such certainty. Mr. Major, of Bomsdorf in Berlin, first attained a satisfactory brood in a large breeding cage, which various

Ornamental Finches inhabited, and then two of them were also fledged in my bird-room. Later this little Pie was bred several times again, by Messrs. Hendschel the engineer, Count York, of Wartenburg, and others, yet even these only bred successfully with isolated pairs, most of them were neither productive nor dependable, also each pair as a rule only once brings its young to a perfect state of development.

"*The young plumage* on the upper surface is deep blue-grey; blackish on the head and throat; lower surface brownish grey-white; beak bluish black, feet black brown.

"Mrs. Cäcilie Lottermoser, of Warnbrunn, first communicated to me the unpleasant experience, that a pair of this little Pie, in a travelling-cage, had during the journey, completely bitten off a foot of a Helena Astrild, and similar events have since been repeated. In the bird-room, however, it shows itself a coward and is by no means so lively as its smaller relative. The male dances and hums, in the same manner, and this is the only distinguishing character between the sexes."*

Illustration from a skin in the author's collection.

THE BRONZE MANNIKIN.

Spermestes cucullata, SWAINS.

THIS little bird is nearly allied to the preceding, having the same form, general aspect and disposition: it inhabits Western Africa from Senegambia to the Congo, and its range extends to Equatorial Africa.

My skins of this species, when compared with that of *S. bicolor*, show a decidedly smaller bird. The upper surface is mouse-brown, darker and glossed with greenish on the top of the head, the forehead being almost black; the feathers on the lower back are pale, becoming .

* As I never possessed a pair, I cannot disprove this statement, but I strongly suspect that the hen is smaller and has a more slender beak than the male.—A.G.B.

whitish towards the croup and barred with dark brown; those of the croup and the upper tail-coverts whitish, barred with blackish; tail-feathers dull black; a band of metallic-green across the shoulder (most vividly developed in my female skin*); wing-coverts brown, lesser-coverts sometimes slightly tinged with green; flights brown, the primaries narrowly fringed along the outer web with whitish; lores, cheeks, sides of neck, chin, throat, and chest bronze-brown, slightly glossed with purplish, the fringe of the feathers glossed with green; breast and abdomen snow-white, the sides barred in front with blackish, glossed with metallic-green, behind with brown; under tail-coverts white, barred with blackish; under wing-coverts somewhat yellowish; primaries below sordid whitish, dusky greyish towards the tips; secondaries browner; tail-feathers below slaty-black. Length $3\frac{3}{8}$ inches; upper mandible leaden-grey, slightly paler at base and below; feet dark horn-brown, legs dark brown.

The female is almost exactly like the male, but apparently the brown chest-patch of this sex is slightly more restricted and less glossy, and the upper surface slightly browner; but with only two skins before me, I doubt the constancy of these characters, and merely give them for what they may be worth.†

Very little has been published respecting the wild life of *S. cucullata*; but Von Heuglin says that it is fond of building on the Mango-trees in the negro villages; so that it is the exception to find one of these trees without the nest of this finch. He often found five or six on the same tree. The nests are spherical and very large in proportion to the bird; marvellously strongly compacted together of fine grasses. The same nest is used several times in succession. The sitting consists of four white eggs.

Mr. C. E. Bewsher says that in the Isle of Anjuan, this bird is found "on high lands in flocks; common; nest and eggs sent," and that the native name is "Neau Saughan."

Mr. E. Newton remarks of the above:—"The eggs are white, and measure .55 by .42; the nest is, like those of many of the genera, entirely composed of the almost ripe stalks of grass, with the seed still on them, and is a domed structure."

Dr. Russ says that the nidification is also described by Dr. H.

* The sexes of my birds were ascertained by dissection. The probability is that the female was a much older example than the male.—A.G.B.

† Since writing the above, Mr. Abrahams has confirmed these characters, and he adds:—"the male has a slightly wider beak at the base * * * * *, is a much larger and bolder bird, and the markings are more pronounced, the head is broader, and the bronze patch on the shoulder is larger than in the hen."—A.G.B.

Dohrn, in the *Proceedings of the Zoological Society of London*, for 1872; but neither Dr. Dohrn's name nor the species (*Spermestes cucullata*) occurs in either index to that volume.

According to Dr. Russ, this Bronze Mannikin breeds quite as well in a cage measuring 14-15 inches high, 12-18 long, and 10-12 deep, as when flying at large in the bird-room, in a nest-box or Hartz-cage covered with paper; forming its nest of hay, bast, cotton threads, soft rags, etc., heaped together carelessly, and lined with hair and cotton, but never with feathers. Both sexes work at it so zealously that the nest is ready in a single day. "They incubate, not by turn, but together, always simultaneously, and are not easily disturbed; so that one may confidently examine the eggs or young. *The time of incubation* lasts twelve days; the young desert the nest between the 16th to the 18th day, and the course of the brood from the first egg to the flight occupies nearly five weeks." Dr. Russ then remarks that after leaving the nest, the young behave just like Zebra Finches, and he adds:—"Dr. Rey gives a very interesting description of the feeding:—'Six youngsters sat in a row, and as soon as the first pleader was pacified, the old bird hopped upon its back, in order thereby to provide for the second. Thus she moved along, until the whole row was satisfied.' As a rule they nest three to four times in succession, and every clutch consists of from four to seven eggs; nevertheless, one must separate the young when fledged, because they disturb the old ones when nesting. *The breeding season* begins in September and lasts up to January; in the spring also some broods commonly ensue."

"*The young plumage* is of an almost uniform chocolate brown, above darker; below clearer yellowish brown; wings below clear brownish yellow, tail black-brown; beak black. The change of colour, if the little birds are well nourished, takes place gradually from the fourth week and is completed in about three months. But occasionally it is very gradual, so that the young birds, imported by the dealers from Africa, may often be abundantly seen in young plumage and more or less mottled, in all possible gradations.

"In the store-cage the little Magpie is quarrelsome and tyrannical towards all others; in the bird-room it pluckily chases even considerably larger birds, as for instance, the Rice Amadina (Java Sparrow) from the food-place, and even from its nest. Those who delight in Ornamental Finches especially esteem its liveliness, hardiness and comical behaviour. In its love-sport, the male croaks its rattling song with wide open beak, and meanwhile hops up and down in regular time, with seemingly pompous gestures, he, however, remains sitting in the

same place and whilst singing only moves to the right and left. The circumstance that he may be made at home in the smallest cage, according to Schlegel even on the writing-desk or work-table, contributes to the favour shown to the bird. When our first brood was fledged, I happened to be in Paris, in order to see the International Exhibition of the year 1867, and my wife carefully noted down the whole proceeding. The preparation for nesting was arranged above the stove, in the dwelling-room, and the birds devoted to love only, obtained air through a gauze window. The adroitness with which the old birds attended to every single young one, so that it might not have an accident in its first flight, seemed especially admirable. When, after the completion of the brood, the nest was examined, it caused no little astonishment. My wife had been quite unable to explain where, for some time past, many varieties of trifles in daily use, which had mysteriously disappeared, could have got to. Now all these things came simultaneously to view, such as threaded sewing-needles, by the side of complete little skeins, little scraps of ribbon, trimming, and anything else appertaining to that class of trifles. The little rogues had secretly, with hurry and eagerness, dragged all into their nest, as soon as nobody was present in the room. However, in spite of all the needles, the young rejoiced in a most excellent development. According to my experience, which was subsequently confirmed by that of other breeders, the little Magpies bred here, nest quite as productively as the wild ones. In both cases, there is now and again a pair, which will not make the slightest attempt at breeding. In the Appendix, I again refer to this brood. The provision corresponds with that prepared for the smallest Astrilds; they also need ants' cocoons, egg-bread, &c., to bring up their young. With careful attention they likewise exhibit remarkable fruitfulness. Still, it must be observed, that several males associated together in the bird-room, indeed fight one another vigorously at first, but afterwards go to nest without disturbance. A male belonging to Dr. Rey bred with two females with satisfactory results. Count York, of Wartenburg, bred mules from the little Pie with the brown coloured Japanese Mannikin, and Mr. Möckel, of Hamburg, bred them from the little lustrous Pies."

Since the publication of the first edition of this work I have had a fair number of examples of this little bird, and find that the hens are very liable to death through egg-binding: otherwise the Bronze Mannikin is very hardy.

Illustration from live specimen and skins in the author's collection.

THE WHYDAHs.

THESE form a natural group of Finches nearly allied to the Weavers. They are, as a rule, fond of the neighbourhood of water, some of the species building in trees, but others in long grass near the ground, whilst the Combasou builds in holes.

Like the Weavers, these birds assume, more or less closely, the plumage of the hen, after the termination of their breeding season, and the latter sex is exceedingly like the hen Weavers in colouring.

In their habits the Whydahs are readily distinguished from all the Ornamental Finches and from the Weavers, inasmuch as all of them, when feeding upon the ground, scratch the earth with their feet with a shuffling motion, somewhat reminding one of a fowl.* When courting, they rise and fall in the air above the hen, flapping their wings rythmically and then suddenly swoop down at her with a squeal.

All the Whydahs have a harsh song, approaching that of the Weavers, but sometimes with a few clear notes interspersed: like the latter bird they will live entirely upon millet, canary and paddy-rice, or oats, caring little for green food. They do not seem to be great insect-eaters, though they will at times accept mealworms or green caterpillars.

With the exception of the Pin-tailed Whydah, these birds seem tolerably peaceable towards their associates:† they are hardy, long-lived; and, when in colour, are a great ornament to an aviary; the long-tailed species being especially admired by visitors, on account of their unique appearance among the short-tailed birds: the smaller species, particularly when purchased in their undress uniform, are by no means expensive.

Whydahs are for the most part polygamous and, in their nidification, approach the Ornamental Finches rather than the Weavers.

* Curiously enough the Song-Sparrows of South America do the same thing.—A.G.B.

† I have, however, known exceptions to this rule, so that I do not recommend that they should be implicitly trusted.—A.G.B.



COMBASOU. ♂. ♀.
(*Hypochaeris ænea*)

THE COMBASOU.

Hypochæra ænea, HARTL.

THE "Combasou" probably includes the three races now separated by scientific Ornithologists as *H. ænea* (answering to the fancier's name of "Combasou"); *H. amauropteryx* (the Steel Finch, and *H. ultramarina* (the Ultramarine Finch). Of the two first Dr. Sharpe describes the males only as follows:—

"1. *H. ænea*:—"Adult male. Black, with a distinct gloss of steel-green; quills and tail-feathers blackish. Total length 3·8 inches, culmen 0·35, wing 2·35, tail 1·35, tarsus 0·5.

"Hab. Senegambia."

"2. *H. amauropteryx*:—"Adult male. With a steel-green gloss like the preceding, but altogether darker and appearing greenish black; wings brown, contrasting with the back. Total length 4 inches, culmen 0·4, wing 2·7, tail 1·5, tarsus 0·55.

"Hab. South Africa from the Transvaal to the Zambesi and Mozambique, extending westwards to Ovampo-Land."

"3. Of *H. ultramarina* he describes both sexes, thus:—

"Adult male. Glossy purplish blue, both above and below; quills and tail-feathers blackish. Total length 3·8 inches, culmen 0·35, wing 2·5, tail 1·4, tarsus 0·55.

"Adult female. Above dusky brown, the feathers margined with dull whitish; a vertical streak, with another above the eye, and a third below the latter dull whitish; under surface of body dull whitish; throat, breast, and flanks dusky ashy, the former and the vent in some specimens more fulvescent; tail-feathers smoky brown.

"Hab. Abyssinia and Shoa as far as the Upper White Nile."

In the above descriptions, the breeding-plumage of the male birds is alone described. When out of colour, the cock birds nearly resemble the hens; but in these little Whydahs, the change is less certain than usual, many males retaining their breeding-plumage for years in confinement; indeed, I had one in my bird-room for four or five years, which never doffed its bright plumage from the time when

I purchased it, until the end of June 1894, when it assumed the hen plumage, just as other examples were coming into colour: later in the year it died.

It is highly probable, that young males in undress colouring, are often ticketed as females, and those which Dr. Sharpe notes as having the vent "more fulvescent" may, perhaps, belong to the male sex; but, without seeing a series of both sexes in winter plumage, it would be unsafe to dogmatize on this point. One thing is certain—the Combassou is unquestionably a Whydah, not an Ornamental Finch. This is proved by its change of plumage, the coloration of its hen, its harsh chattering song, its method of courtship, and its habit of scratching in the food-pan when feeding: in one respect it approaches the Ornamental Finches,—it lays white eggs, in nests built in holes.

Von Heuglin describes this as—"One of the most abundant resident birds, and * * * here almost exclusively an inhabitant of human settlements, in common with *Lagonosticta minima*. Altogether a sprightly, and innocent little creature, which even comes into the interior of the houses, and there seeks for grain, bread-crumbs and other waste food, or quenches its thirst at the water receptacles. The change of colour, of the males to the breeding-plumage, occurs with the commencement of the rainy-season. Usually only a few pairs make their home in one and the same farm-building; these birds also prefer the clay huts of the Nubians to the straw habitations (*Toqul*) of the Soudanese. The song is not specially remarkable, the call-note a very sharp and somewhat harsh chirp.

"According to Brehm the Ultramarine Finch plunders the *Durah* fields in flocks together with the Fire Finches, and its breeding-season occurs in the months of January and March."*

"The nest is placed upon any kind of tree, and consists of dry grass-stems. We never met with this bird in very large crowds, it is extremely voracious, and destroys a good many ears of negro-millet, also crams itself on barn-floors and even with camels and horses as its hosts. I found nests during the months of July to the beginning of September under rafters of roofs, in gable-ends and holes in walls. They consist, like those of the House-Sparrow, of a large, but, nevertheless, orderly, heap of straw-stalks, rags, cotton, feathers and the like: and the nest depression is delicately lined with hairs, threads, &c. There is no doubt that it has several broods. The Steel Finch also appears to appropriate the deserted nests of Swallows. The usual

* The 'Bishop' Weavers are called Fire Finches by many, and these are evidently intended by Von Heuglin.—A.G.B.

number of eggs is three to five; these are obtusely oval, pure white and when incubated they acquire a more bluish tinge."

"After the rainy season the old birds moult."

Von Heuglin goes on to say that he has known Ultramarine Finches to make their home in the forest region, in which case, they are seen singly or in pairs, and appear to nest in holes in trees: he is, however, not sure that all these belong to the steel-grey type (*H. ænea*) which he considers to be simply a variety of the other.

Altogether, the above account is somewhat vague; inasmuch as the first statement implies that the nest is built among the branches of trees; whereas, later on, we are informed that in wooded country it is probably built in holes; and, in cultivated districts, unquestionably so.

The Combasou is a perfectly harmless bird, and may be kept quite safely with the smallest Waxbills, to which, indeed, it will make love continually during the breeding-season; but without the savage violence of a typical Weaver: the song too nearly resembles castanets to be pretty, but the bird itself evidently thinks it very fine. As regards hardiness, the Combasou appears to be quite indifferent to cold, one in my coldest aviary having been perfectly happy with twelve degrees of frost, although it had only been in England three or four months at the time: indeed, my experience would tend to show that, when recently imported, fresh air is of more importance to this species than warmth, since one of those turned into my bird-room died at the approach of winter, though well fed and in good feather.

Dr. Russ calls this "The Steel-blue Whydah Finch" or the "Atlas-bird," and he justly says:—"The Atlas-bird is commonly numbered among the Ornamental Finches, but, nevertheless, incorrectly, for he proves his correspondence with the Whydah Finches in nearly every particular; he has the regular yearly change of colour, the fowl-like scratching, the jumping-flight love-sport, as well as the tempestuous disposition. On the other hand he is distinguished from them, in that he does not bear the elongated tail, whilst in his nest-building, and pure white eggs, he resembles the former. One may, therefore, regard him as a link between the Whydah and Ornamental Finches. Prominent Ornithologists, however, as for instance Cabanis, place him unhesitatingly with the first of these, and this example I follow."

"For years I have regularly kept a pair in the bird-room and have tried every possible means to obtain a satisfactory breeding-result; I procured a number, retained the strongest pair, then again exchanged them, offered the most miscellaneous food, many kinds of

nesting contrivances, and the most varied building materials—nevertheless, I have only been able to rejoice in a single result. At length I noticed that a female was continually flying round the nest of a pair of little Red Astrilds, and now and again slipped into it. The Ornamental Finches did not permit themselves to be at all disturbed thereby, and thus I hoped that they would rear foster-children, from the eggs laid somewhere inside. But the female of the latter never proceeded to egg-laying, whereas, the clutch was placed in the vicinity of the door, and exposed to disturbances, respecting which the Ornamental Finches certainly did not trouble themselves. After a long time, the female Steel Finch dragged coarse bents into an already used, and very dirty Zebra Finch nest, upon the compressed structure, and formed upon the latter a semi-domed nest cavity. *The laying* of five eggs was incubated by the female alone in twelve days, whilst the male defended the nest jealously, and pursued all other birds, even very large ones, with outcry and flapping of wings.

The young above is fawn-brown, every feather bordered with pale reddish; over the head, along the vertex, and at the sides, run three fawn-reddish stripes; tail blackish-brown; underside, breast, sides, underside of wings, and tail, fawn-yellowish; abdomen and vent pure white. In the first year, the young males only partly change colour, so that they appear dappled. The old strong bird, commonly remains eight or nine months, indeed sometimes a year and a half, in ornamental plumage, before he grows grey. Just as in the tract of Africa, from which the Steel Finches have come, even in captivity, they commence their change into the wedding dress from July to September."

"In the heat of a room they endure admirably for many years, and, indeed, they have frequently been wintered in an unheated enclosure. Nevertheless, in most cases, especially in small aviaries, one soon wearies of them, at least at those times when they lose their ornamental clothing, and become insignificantly grey. Of a genuine song we can say nothing."

As for a true bird-lover becoming tired of this, or any other species, when out of colour, I cannot but think Dr. Russ mistaken; a gardener might as well weary of his plants when not in flower, or a husband of his wife when not attired to receive company. As for the song, it is not melodious, but it has the merit of unwearied energy, helping to swell the general concert; just as a big drum, or the castanets, though a mere noise when heard alone, serve to emphasize certain passages.

Illustration of the male, from two specimens living in the author's aviaries, in 1894, but which both died before the end of that year.



PIN-TAILED WHYDAH. ♂. ♀.
(*Vidua principalis*.)

THE PIN-TAILED WHYDAH.

Vidua principalis, LINN.

THIS extremely excitable, and active little bird, is frequently imported; and may almost always be obtained either in or out of colour. According to Dr. Sharpe, its habitat is "from Senegambia, along the whole western coast, to Damara and Great Namaqua Land, and extending along the Congo to the White Nile district. Throughout North-eastern Africa, as high as 17° N. lat.; also throughout the whole of the Zanzibar and Masai countries, as far inland as Lake Tanganyika, and south to Mosambique and the Zambesi; thence south into the eastern Cape Colony, as far west as the Knysna district. It probably occurs in all the intervening countries of Africa." Mr. Abrahams, however, believes that there are two distinct races, and that the Southern form not only differs from the Western in size and colouring, but also in its capacity for replacing its tail, when lost, and in the fact that it retains its breeding plumage longer.

My male bird was a Southern example; but, as it never lost its tail during the breeding season, I was unable to confirm this statement of Mr. Abrahams': nevertheless, it appears that the two cannot be separated as species, as we shall presently see. I do not know whence my females were received.

The adult male, in colour, has the top of the head, sometimes the chin, the back, a short band extending forwards on each side on to the chest, and the tail greenish-black; wings black, with the lesser and median coverts white, forming a broad band; greater coverts edged with buff; the throat, a narrow collar running over the back of the neck, the breast, abdomen, and under tail-coverts, white. Length, exclusive of longer tail-feathers, $4\frac{3}{4}$ inches; with tail-feathers varying in length, according to age. Beak coral-red; legs reddish-brown; iris dark brown.

The female above is mottled brown and black, the top of the head is brown, with darker dots, traversed by six blackish longitudinal stripes, region of the eye brown; under parts whitish, stained with tawny on the flanks, with a few blackish lines; quills above blackish, with greyish

edges; the inner secondaries with tawny borders; below dusky, with whitish edges. Length $4\frac{1}{2}$ inches.

The male in winter plumage closely resembles the female, but the wings are darker, and, of course, its slightly superior size remains.

According to Mr. Abrahams, Southern birds are somewhat larger than those from the West, and their colours are more distinct; "the white is purer, more intense, while the black is richer and more deep; the bill is larger and of a brighter red. Again, the breast, right up to the throat, is a pure white, whereas, the Western bird has a patch of black on the throat."

Dr. Sharpe, however, says:—"In some specimens the black spot on the chin is larger than in others, and the black patch on the sides of the upper breast forms a half-crescent on the latter. The spot on the chin varies in size, and is sometimes absent altogether"—"certainly it is not peculiar to the birds of any one locality. The amount of white on the inner greater coverts, and the tail-feathers, also varies considerably."

It would, therefore, seem that in these differences we have to deal with characters which, in a long series, prove not to be constant; though Mr. Abrahams' long experience, tends also to show, that certain features are prevalent in the Southern birds.

According to Mr. Ayres (Sharpe and Layard):—"This Finch is not uncommon south of Mangwati, usually in pairs; and is also found, though more sparingly, in the Rustenberg and Origstadt districts of the Transvaal. During the breeding season, when the wonderful tail of the cock bird is fully developed, he will sometimes rise, until nearly out of sight, when he suddenly descends with much velocity, and, if approached, makes off with ease and swiftness." Mr. Anderson remarks, that it is "rather a scarce species, much more so than *V. regia*; it only occurs during the rainy season, and is generally seen in pairs or very small flocks. Its food consists of the seeds of grass." The author, in his first edition, says:—"They feed on grass-seeds, and are only to be found in open grassy country; they rarely perch on trees, though a pair in my aviary were always on the perches, the female having taken the highest perch in the whole cage. The female amuses me, by the way in which she scratches on the sandy cage-bottom. How she does it I cannot tell, her motions are so queer; but she apparently springs forward and spurs backwards, and the sand and seed fly in showers, at each repetition of the manœuvre. I have frequently observed the hovering motion, described

by Mr. Ayres, but attributed it to a design of the male to take care of his long tail."

Mr. Ayres' account is:—"The male of this species has a curious habit of hovering over his mate when she is feeding on the ground, bobbing up and down, as you see the Mayflies and Midges do on a summer's evening in England. This exercise he generally continues for some minutes without resting."

Of course, all aviarists who have kept several species of Whydahs, will at once recognize both the above mentioned peculiarities, not as traits of one, but of all the species of Whydah-birds; they are seen equally in the Combassou and Paradise Whydah. When on the ground, the long-tailed species seem to keep their tail-feathers partly elevated above the dirt; though in old birds the extreme ends often get frayed and soiled by contact with the earth or sand.

Von Heuglin's account differs somewhat from the preceding; he says:—"Although not exactly abundant, nevertheless, generally distributed over suitable districts; yet for the most part only singly and in pairs, in autumn in small family parties. It usually affects the beds of the torrents under overhanging foliage, clearings in tall forest, and thickets near desert-brooks; this delicate little bird also appears in the neighbourhood of human settlements, in cattle parks and in cotton and hibiscus plantations. It stays over the rainy season, during which the business of breeding is proceeded with, in certain localities; the male usually perched higher in the tops of the thorn-trees, from which its soft prattling song may frequently be heard. Contrary to Layard's and Ayres' assertion, I have never seen it on the earth. The food consists of seeds and insects with their eggs. They are of a placid, not very sprightly disposition, do not fly exactly clumsily, but yet never far, and they hop and slide more through the bush than *V. paradisea*. At the commencement of the rainy-season I obtained a nest, which my hunters described as that of the Red-beaked Widow. It was placed at a height of five to six feet, by a watercourse, on the overhanging branch of a *Combretacea*; three or four of the long leaves of the tree were literally stitched together, that is to say, their edges bored through and bound together with root fibre; the somewhat small sack-shaped space between these leaves, lined and covered with vegetable wool and fine hairs, the nest-cavity tolerably deep.

"In the neighbourhood of the upper White Nile, I only met with the Red-beaked Widow in September; possibly it may have escaped my notice previous to the rainy-season, in consequence of its inconspicuous winter plumage."

The above account will seem extremely strange to any student of living Whydahs; that this most sprightly of all imported species should be described as "placid" and as flying "not exactly clumsily (or heavily)" sounds like nonsense, but then, to compare it unfavourably, as regards activity, with the stately and peaceful Paradise Whydah, makes one almost wonder whether Von Heuglin could have been speaking of the Pin-tailed Whydah.

Possibly the habitat of a species may affect it both in disposition and plumage; but, if this is the case, why do all who have ever kept this bird in aviaries, complain of its mischievous activity; which, during the breeding-season keeps all its associates in a constant state of terror?

Dr. Russ, who calls this the "Dominican Whydah Finch," remarks:—"In captivity the Dominican Whydah Finch develops a considerably greater activity, which even degenerates into malignity and tyranny towards the entire community of the bird-room. Scarcely do the little Astrilds, or other Finches, assemble in a coloured crowd at the feeding place, or lie comfortably in the sand, in order to sun themselves; or, splashing the water over themselves, begin to bathe, than the Dominican Widow rushes very suddenly into the midst of them; and, partly in consequence of its tempestuous plunge, partly owing to the waving and flapping of the long tail, the whole world is hurried into blind anguish and foolish terror. The bird carries on this frightening and scattering, as it were, for his pleasure, for days and weeks together, and, consequently, there is nothing else to be done, but to catch and separate him. Although this is probably the reason for which he is banished from most of the smaller bird-rooms, it is, nevertheless, on the other hand, as surprising as lamentable, that, hitherto nobody at all has made patient experiments, in suitable quarters, towards breeding him and attained success."

Dr. Russ then goes on to tell how, a specimen of this bird, in the possession of Dr. Luchs, after wearing the female livery for ten years, had suddenly assumed the colouring of the male; excepting, that the four long tail feathers did not make their appearance. Dr. Luchs, rightly no doubt, ascribed this change of appearance to old age.

With regard to what Dr. Russ says, as to breeding this species, it is evident that in order to attain success, an aviary of some four or five yards in length, would have to be devoted entirely to the experiment; and only those who were wealthy enough to have many aviaries of such dimensions, could well afford to give up one to so common a species, unless, indeed, a man made up his mind to confine



PARADISE WHYDAH. ♀. ♂.
(*Sieganura paradisea*)

himself strictly to breeding a very limited number of species; substituting these for others as soon as he had succeeded.

Illustration of the male from a specimen in the author's collection, which died just as it commenced its change into winter plumage.

THE PARADISE WHYDAH.

Steganura paradisea, LINN.

ALSO a much imported and easily obtainable bird, which, according to Dr. Sharpe, inhabits "Senegambia, N.E. Africa below 17 N. lat. to Shoa and the White-Nile region; East Africa from the Tana River to Zanzibar, and inland to Lake Tanganyika; Mozambique, and the Zambesi south to the Transvaal, and west from Lake Ngami to Damara-Land and Angola."

The male bird, when in colour, has the head and throat black; the back of the neck, with a broad belt of glossy reddish mahogany, which passes down the sides of the neck, and unites with the same colouring on the breast, but there it passes gradually into the buff whitish colouring of the abdomen; back, shoulders, wing-coverts, tail, thighs and under tail-coverts black; croup white; flight feathers brown; tail-feathers barred with more intense black, visible in certain lights. Length, exclusive of the long tail plumes (which vary with age), $5\frac{3}{8}$ inches. Beak black, legs brown, iris dark brown.

The female above, rusty brownish with black shaft-streaks to the feathers; a longitudinal buffish white stripe on the top of the head, the crown slightly black-streaked; a broad pale buff eye-brow; lores and feathers round the eye white; ear-coverts pale sandy buff, margined broadly above with black; flights and tail-feathers blackish brown; wing-coverts brown, broadly margined externally with rusty brown, the upper coverts with narrow isabelline white edges; upper tail-coverts black with isabelline white borders; cheeks and throat buff-whitish; sides of neck more tawny and streaked with black; throat and breast

tawny buff, abdomen white, tawny buff at the sides, quills below dusky with greyish inner edges; remainder of under surface white. Length 6 inches.

The male, when out of colour, nearly resembles the female.* The tail-plumes decrease in breadth, but increase in length with age: thus a young male, given to me by Mr. Housden after its death, showed broad plumes measuring only about three inches in length (possibly they had not quite done growing). My own first specimen was a very old bird when it died, as could be seen by the coarse scaling of the claws; its plumes, when dropped in 1889, measured $11\frac{3}{4}$ inches; in 1890 $12\frac{1}{8}$ inches; in 1891 $13\frac{5}{8}$ inches; and in 1892, when it died, they appeared to be about the same length, probably their maximum development.

Although abundant and widely distributed, next to nothing has been published respecting the habits of this species in a wild state: Von Heuglin, however, gives the following meagre information:—"They mostly frequent thorny trees and the higher bushes, of which they prefer the bare tops, are not particularly active, fly short distances, and with manifest effort, laboriously dragging after them the heavy tail, not expanding it; the latter when at rest hangs down almost perpendicularly. The song is remarkable for its monotony, the call-note is a not particularly loud, somewhat flute-like chirp, which is also occasionally heard in flight. Old males, in breeding plumage, seldom descend to the ground; the females, however, behave in all respects like the Ultramarine Finches. I have been unable to make any observations touching the business of propagation. In autumn we often meet with flocks, which consist entirely of half moulted males, which then, in their manner of starting up and flight, have much in common with *Penthetria macroura*, but the lively disposition and skill in climbing of the latter, is entirely wanting to them." We thus see that Von Heuglin had little to say about this most charming bird, and nothing to its credit. Dr. Russ, on the other hand, does the Paradise Whydah justice; he says:—"Both in the bird-room and in cages its aspect is noble, and on that account the Paradise Whydah Finch, the universally so-called Paradise Widow, is unusually beloved and treasured."

Further on, Dr. Russ observes:—"A pair of Paradise Whydah Finches, in grey plumage, are conspicuously quiet birds, and sensitive to adverse influences. As soon as the beak of the male becomes dark at the tip, and coloured spots appear on the head, throat, and breast,

* It can always be distinguished by its superior size, and the sandy buff broader diffused longitudinal stripe on the crown, that of the female being whiter and sharply defined.—A.G.B.

the Whydah Finch seems to get gradually more lively, and begins with increased industry his song: which, indeed, is only a little harmonious chirping of monosyllabic long-drawn sounds, partly shrill, partly euphonious. Now for hours he takes a short flight in the bird-room, in which he invariably settles on the same branch. With the further development of the ornamental clothing, his actions become constantly more lively, until at length he performs his jumping love-dance many times during the day.

“According to the style of feeding, the change of colour proceeds more or less quickly, so that it is completed in from about four to six weeks. He who has not previously set eyes upon the Sparrow-grey Whydah Finch, will now recognize him with difficulty.

“Frequently a bird, which has been considered to be a female, puts on its beautiful clothing in the second or even third season of love.

“Although through a long season of years, and in the most diverse manners, I attempted to breed the Paradise Whydah Finch, I was throughout unsuccessful in attaining a satisfactory result. Even when I was able to prevail upon a horticulturist to turn some pairs loose in a large greenhouse, no success was met with. Still I can give an account of one partially successful case as follows:—

“In the case of all birds which are constrained to nest at the particular season of their ornamental plumage, there is a great difficulty in obtaining for them females which are derived from the same region, and are anxious to breed at the same time. I, therefore, turned loose three females with one male in the bird-room. During the first year these did not exhibit the slightest inclination to nest. Only towards autumn of the second year, all three began to drag straws hither and thither, and, in November, whilst the male was still exhibiting full ornamental plumage, they collected bents, threads of bast, tufts of cotton-wool and the like, into an apparently disorderly heap on the wire bottom of a high-hanging cage. I could, however, never make sure of an approach between male and female. When, after a considerable time, I at length investigated, I found an extraordinary double nest within the large tower, of all possible materials. One nest cavity was shaped like a baker’s oven, roofed over and neatly rounded off with fibres and long horse-hairs, the other was a flat, loosely compacted hollow, the hinder margin of which scarcely stood up at all. In the first nest were three, unfortunately dead, young ones; in the second a living one. I now had reason to lament that I had not made an examination sooner, for now I had missed the chance of learning the appearance and colour of the eggs, the duration of incubation and

development of the young; this is the more annoying to me, because up to the present time no other breeder has been able to congratulate himself upon a successful hatch. The living youngster was fed by two females, but I never noticed that the old male troubled himself about the nest or the young one. The latter in its young clothing was very like the old female, only much paler whitish-grey. After its flight it proved itself a lazy, thoroughly voracious bird, which, after about a year, exhibited a wonderful, almost ghostly, appearance; this I should certainly not have the courage to assert, if Messrs. Leuckfeld, E. Hendschel, and several other observers, had not had the same experience with imported young Paradise Whydahs."

Dr. Russ then proceeds to mention that the young Whydah used to greatly terrify the small Ornamental Finches by plunging in amongst them with his feathers swelled out, which made him appear considerably larger and almost entirely white.

Of this very handsome species I obtained a male early in the year 1889; which died in 1892, as already stated. In 1893 I obtained two others in undress uniform, both of which appear to be hens; and in 1895 two pairs, the males in full colour.

Adult Paradise Whydahs are usually peaceable, even somewhat timid when out of colour, and rarely aggressive like the Pin-tailed Whydah, at any time, according to my experience. On one occasion, however, my first bird was very unwillingly the cause of universal terror in my bird-room; for, in slipping through the branches near the ceiling, his long tail caught in a crooked twig and, as he attempted to fly, it jerked him back, so that he hung head downwards. Every time the wretched captive made a struggle to escape from his miserable plight, there was a general panic; the reversal of the natural position of the poor Whydah seemed to have rendered him an object of superstitious horror. Happily, I soon discovered and released him, when peace was immediately restored. In sober truth, when I first observed the Whydah wildly flapping and spinning round at the end of one plume, I was at a loss to know what he was, but as he wearied of his struggles and hung quietly, I recognized the fact that the tail was bearing the bird instead of the reverse. In 1897 I had an exceptional and unpleasant experience with a male Paradise Whydah out of colour, it having acquired a taste for entering the nests of Zebra Finches and murdering the young. After considerable exertion I captured the assassin, and placed it with a crowd of Weavers, but I suppose the chasing about which it got before I could catch it affected its heart, for it died two or three days afterwards.



J.W. Robinson

LONG-TAILED WHYDAH. ♂♂♀.
(*Chera procne*)

Dr. Russ' experience in breeding this species is so far satisfactory, that it proves the correctness of my belief, expressed in an article on Whydahs (*Feathered World*, Oct. 13th, 1893) that the hens, and not the cocks, build the nest.

Illustrations from living specimens and skins in the author's collection.

THE LONG-TAILED WHYDAH.

Chera procne, BODD.

AN extremely beautiful South African species, ranging from the eastern districts of Cape Colony to Natal and the Transvaal, also found on the Canene river and in Benguela in S.W. Africa. Unfortunately, not imported in any great numbers, and consequently never to be obtained at a moderate price, like the two preceding species.

When in colour the male bird is glossy black, the under parts having the appearance of watered silk; a large patch of brilliant scarlet covers the lesser wing-coverts, the median coverts being yellowish white, the greater coverts and flights edged with white or pale brown, but the primaries only near the end of the outer webs: the legs and beak are dull red, the iris brown. Length, including the tail, usually averages $19\frac{1}{2}$ inches, though specimens sometimes occur in which the tail alone attains a length of 18 inches; probably only in very old birds.

The female is pale tawny brown, the lesser wing-coverts reddish-tawny; all the feathers above (including the latter) streaked and spotted with blackish; a broad yellowish eyebrow; the lores and feathers surrounding the eye whitish; ear-coverts reddish brown, streaked with black; chin, breast and abdomen uniformly yellowish; under tail-coverts with blackish shaft streaks; axillaries and under wing-coverts dull black; flights below dusky, yellowish towards the base of the inner web, Length 7 inches.

The male in winter plumage closely resembles the female. Although quite a common species in some parts of South Africa, the catchers do not seem to be aware of the fact that it is a very desirable cage-bird, otherwise it is inexplicable that they do not include it amongst the many heads of Weavers which are continually being sent here from the Cape.

According to Mr. F. A. Barratt (Sharpe and Layard):—"Its favourite resorts are swampy ground, valleys, and the long reeds about ponds. After a sharp shower of rain, or in a strong wind, they are scarcely able to fly, and can be easily knocked down; when flying they very gracefully arch the tail. They leave their nuptial district in the Transvaal about the end of April or the beginning of May."

Mr. W. L. Distant says:—"These long tail-feathers appear to offer a direct hindrance to flight, and the birds always seemed to proceed with difficulty, and great encumbrance, like a Court lady dragging a heavy train."

Messrs. Sharpe and Layard write:—"We are informed that in the breeding-season, when the male has assumed his nuptial livery and long tail-feathers, his flight is so laboured that the children constantly run him down. They are quite unable to fly against the wind, and in rainy weather can hardly be got to move out of the thick bushes, in which, knowing their helplessness, they conceal themselves. The Kaffir children stretch bird-limed lines across the fields of millet and Kaffir corn, and snare great numbers of the males, by their tails becoming entangled in the lines. We are told that they breed among rushes and reeds, like *Pyromelana oryx*."

Mr. Henry Bowker writes:—"This bird seldom interferes with our corn-lands, and is mostly found on the open flats; it builds its nest in long grass close to the ground, and the points of the grasses are drawn over and tied at the top like the frame-work of a native hut. The tail of the male in the breeding-season is not an inconvenience to him. He never, in fact, seems to enjoy himself so much as during a high wind, in which he shows off to advantage, spreading his tail out like a fan. I should say the average is ten or fifteen females to one male."

The following observations are from the author's note-book:—"Riding once between Table Farm and Grahamstown, with Dr. Atherstone, I saw what I took to be a black silk neckerchief, drifting down to us in the strong wind, from a house on a hill some 300 yards from our road. I called the attention of my companion to it, when, with a laugh, he told me it was a Kaffir Fink. The description

was complete! as he came near, I saw he was drifting at a prodigious rate; his wings flapping round and round like mill sails, and his tail spread in a compact mass. He appeared quite capable of guiding himself, for he took good care never to let me get within shot of him, though I tried hard; but I shall never forget the queer black object. Harford says the Zulus set a high value on their tails. Doubtless they are used to decorate the heads of the warriors, as represented by Angus, and other painters of Zulu battle-fields."

Mr. Ayres gives the following account of their breeding habits:—"The nest of this species is placed close to the ground, in a tuft of long grass, to the blades and stalks of which it is roughly woven or joined; it is rather a rough structure, composed of fine grass and lined with the reed-ends; the opening is at the side. The eggs are almost invariably four in number. It is called by the colonists 'Kaffir Fink,' and Captain Harford says that the Zulu name is 'Isa-Kabuli.'"

Messrs. Butler, Feilden and Reid say:—"One of the commonest birds in the upper portions of the colony, but not observed in any great numbers below Howick, or rather Riet Sprint, a few miles lower down on the Pietermaritzburg Road. Reid met with a small colony on the downs near Richmond Road Station, in December, but did not observe them elsewhere in that neighbourhood. They roost in hundreds, or even thousands, in the reedy 'vleys,' flock after flock pouring in from all sides about sundown, till the whole place is alive with them. Long-tailed Widow-bird, Kaffir Chief, called by the Kaffirs 'Saca-bulo.'"

"After a severe hailstorm in October, Butler found several of these birds near Newcastle so injured by the hailstones that they were unable to fly."

Dr. Russ gives an account of the habits of a male in the Berlin Zoological Gardens, in much the same words as he uses to describe those of the Paradise Whydah: as compared with the small Whydahs it is by no means active, flying somewhat heavily out from a branch and returning to the same spot.

Singularly enough, after describing the nest-building of the Paradise Whydah, and distinctly showing that the hens were the architects, and that the cock-birds took no interest either in the nest or the young (a common failing in other polygamous birds); he now seems to have forgotten his own experience and urges, almost word for word, the same fallacy put forward by Wiener in Cassell's *Cage Birds*, viz.:—That as the males, and not the females, of all Weavers

build the nest; the accounts of travellers who describe the domed structure of this bird must be incorrect.

As a matter of fact, the Whydahs are a transitional group, between the Ornamental Finches and the Weavers; and the males, of the majority of the species, have not acquired the exclusive art ascribed to them, and for which their style of plumage unfits them: furthermore, even hen Weavers are not all incapable of construction, since my first hen of the Orange Bishop built her own nest, whilst her husband looked on unconcernedly; and, in the case of the species of *Ploceus*, both sexes work together upon their habitations, the male commencing, and both male and female completing the structure.

Mr. Abrahams received a small consignment of this rarely imported species in 1893, but, I believe, they were all males. Dr. Russ thinks that when birds were only imported on account of their beauty, the African catchers were instructed not to retain hens, and they still imagine that there is no demand for that sex: but if this be so, how is it that they capture the hens of other species which are not one whit more attractive? In 1896 my friend, Mr. Housden, obtained several examples of the male which I had the pleasure of seeing flying in his largest aviary in 1897. I am not sure that I should much care to have the species myself; it is very handsome, but requires a good deal of space to show it off to advantage. In a cage it is wild and miserable, and soon become dirty.

Sketch for the illustration of the male made from a living specimen exhibited at the Crystal Palace in 1895: details filled in from a skin.

THE RED-COLLARED WHYDAH.

Penthetria ardens, BODD.

DR. SHARPE states that this bird inhabits nearly the whole of South Africa, from the Eastern districts of the Cape Colony to Natal, and the Eastern Transvaal to the Zambesi, occurring also in south-western Africa and Angola.



RED-COLLARED WHYDAH. ♂♀.
(*Penthetria ardens*)

In body, this Whydah is about equal in size to our Chaffinch; but, when in colour, the length of the tail in the male makes it appear much larger: its colouring then is jet black, with the exception of a broad half collar of vermilion, or sometimes orange, across the back of the throat; the feathers of the thighs, and under tail-coverts, have their edges striped with grey. Length, including tail, 12 inches; beak black; legs dark grey-brown; eyes bright brown.

When out of colour, buff-whitish with black centres to the feathers, the under parts white, slightly stained with buff; the throat slightly tinged with vermilion; the wing feathers black, with whitish edges; tail black.

The female is similar to the male when out of colour, but the vermilion is quite absent from the throat, which is pale buff, and the wings and tail are less black. Length $4\frac{1}{2}$ inches.

In Angola the red half-collar is frequently absent, on which account the black form has been distinguished by the name of *P. concolor*; but, as every gradation, from one type to the other, is said by Dr. Cabanis, to exist in Angola, the black form can only be regarded as a melanistic phase of the species.

The Red-collared Whydah is very rarely imported; Mr. Abrahams informed me, two or three years ago, that he had only once received it; Dr. Russ says that two examples were sent to him by Jamrach, but they both died soon after they reached him, and since that time various dealers have received them at long intervals, and for the most part singly. Nevertheless, so beautiful a bird cannot always remain a rarity in the bird-market, since it is known to be common in some parts of Southern Africa: Mr. Fulljames, of Balham, had two examples in 1895, and other examples have been obtained more recently.

Mr. Guillemard writes (Sharpe and Layard):—" *Vidua ardens* is not uncommon on the rivers of the north-western Transvaal, and may be met with even as low as Rustenberg. It is fond of haunting large reed-beds, from which it does not seem to wander far; indeed, it is so shy that one is rarely able to get a shot at it. At a distance they much resemble *Chera procne*, from which they are only to be distinguished by their smaller size. In summer plumage the bill and feet are jet black, and besides the tipping of the under tail-coverts with grey, there is occasionally a grey feather or two about the head."

"Captain Harford informs us, that in Natal they fly in flocks, five or six males with about fifty females. This we also observed, when we fell in with them, in the swampy grass lands and fields of Kaffir

corn at Alice. The females usually hide themselves in the sea of herbage, diving to the bottom in a moment, while the males, after occasionally doing battle with each other, or hovering with the peculiar jerking, flapping motion, common to this genus and *Chera*, over some of the females concealed in the grass, would betake themselves to some elevated head of corn or rush, and thence survey the field. We feel convinced that all the species of the genus *Vidua*, and also *Chera procne*, that we have encountered in South Africa, are polygamous. This may also account for what Mr. Atmore, and others, tell us of the breeding of several females of *Estrela astrild* in the same nest."

According to Ayres (quoted by Dr. Russ) these birds plait together the leaves of a grass tussock, so that the nest thus prepared remains green during the development of the brood. It is curious that none of these travellers have taken the trouble to give full particulars of the nidification, number and colouring of the eggs, &c.

Illustrations from skins in the Natural History Museum.

THE YELLOW-BACKED WHYDAH.

Penthetriopsis macrura, BONAP.

AN inhabitant of West Africa, from Senegambia to Angola, and crossing to Equatorial Africa and the Lake countries. It is not infrequently imported, and I have seen it partly out of colour at Mr. Abrahams'. A little larger than *Penthetria ardens*, it has a shorter tail, and altogether is not so strikingly handsome a bird. The male, when in breeding plumage, is jet black, with the mantle, scapulars and lesser wing-coverts bright chrome yellow, remaining coverts edged with tawny, and the inner secondaries with pale brown; below, the axillaries and under wing-coverts are yellowish. Length, including tail, $8\frac{1}{2}$ inches; beak and legs bluish black; iris brown.

In its winter plumage it more nearly resembles the female, but it



YELLOW-BACKED WHYDAH ♂.♀.
(*Penthetriopsis macrura*)

is larger, and does not entirely lose the yellow from the wing-coverts; the dark brown streaking of the under parts is also better defined.

The adult female is pale greyish-brown, streaked with darker brown on the crown, mantle and back; lesser wing-coverts dark brown, edged with olivaceous yellow; remaining feathers of the wing and tail dark brown, edged with whity-brown; lores and a prominent eyebrow yellowish buff; feathers round eye and ear-coverts brown; throat yellowish; remainder of under surface buff, shading into pale brown at the sides, a few darker brown streaks on the sides of the breast; quills below dusky, yellowish along the inner edge. Length, 5 inches; beak and legs pale flesh-coloured, upper mandible brownish; iris brown.

Von Heuglin says of this Whydah:—"I found it in pairs during the summer rains, in damp valleys in Bongo, in the neighbourhood of the Gazelle river. It gains its full colouring in the middle of July, and appears to leave its living haunts, in August and September, with the young. In December, I again noticed some of the birds, not far from the Kosanga river among dry high grass. Like its relatives, *P. macrura* makes its dwelling in tall *Cyperaceæ* and in thickets of other kinds of *Gramineæ*, the seeds of which form its food; only it appears, at any rate in the breeding season, not to live in communities. It is a very lively bird."

"I have seen this bird as little on bushes as on the ground."

According to Reichenow, this species is abundant at Accra: his testimony corresponds with that of Von Heuglin; for he says:—"it wanders about singly or in pairs in the tall grass and upon bushes." This would seem to argue that the Yellow-backed Whydah was an exception to the rule, and was not polygamous.

"It is fond of sitting upon a prominent branch, and therefrom projects itself straight into the air, at which time the body is held quite perpendicularly, and the feathers of the nape appear puffed up. The construction of the nest greatly resembles that of the Oryx Weaver; it has a roof-like super-structure. At the same time, as a whole, it is somewhat firmer; inasmuch as there is a loosely formed outer wall of coarse grass, and a thick inner wall of fine fragile grass, which latter gives the requisite solidity to the nest. It is by no means a work of art, as Kirk describes it. It stands isolated in tall grass. The male continues to build, though the laying, consisting of two, or at most three eggs, be completed. Whilst the female incubates, the male sits on an elevated spot, close by, with bristling neck feathers, and charges every bird which approaches the nesting-place. Where this Whydah

Finch occurs in abundance, one finds the nests at less distance apart; nevertheless, each male zealously guards his little territory. At the Gold Coast I found eggs in the nests in August; in the Cameroons in November."

Dr. Russ received this species from Jamrach, but he speaks of it as being very rare. Several examples have come into the London market during the last two or three years. In the fact that the male builds, it approaches the Weavers.

Illustrations from skins in the Natural History Museum.

THE WEAVERS.

SO called from the fact that these birds are most industrious and clever architects, weaving strong and very curious nests. As a rule this work is done by the males, although my experience with the Orange Bishop would tend to show that the females are capable of doing equally good work. In the case of the genus *Ploceus* the nests are completed by both sexes conjointly, and if males alone are kept in an aviary the nests are never completed.

The species, both of *Quelea* and *Ploceus* are incessant weavers; they like nothing better; even in a small cage they will plait thread, worsted or hay, in and out of the wires for their own amusement.

By scientists the *Viduline* Weavers are placed among the Ornamental Finches, from which they are distinguished by their marked changes of plumage, the multiform character of their nests, their coloured eggs, and the harshness of their songs. These peculiarities do not, however, serve to distinguish the *Viduline* from the *Ploceine* Weavers; which, consequently, are associated by aviarists under one title.

The season of love, in all Weaver-birds, is characterized by a marvellous accession of colour in the plumage of the males; though, during their season of quietude, many of them are barely distinguishable from their soberly coloured wives, they now don the most brilliant dress, many of the species showing neck-ruffs, lengthened upper tail-coverts, and flank plumes, which greatly add to their beauty.



YELLOW-SHOULDERED WEAVER. ♀. ♂.
(*Pyromelana capensis*.)

Now it is that the stronger sex begins to assert itself, to sing its harsh songs, puff out its plumage, strut, quarrel, and chase its hen from pillar to post; now, too, those in whom the weaving tendency is strong, begin to plait their curious nests, and, in the case of such as are not approved by the females, as laboriously pick them to pieces again; they are interesting and very hardy birds, kept by most aviarists.

THE YELLOW-SHOULDERED WEAVER.

Pyromelana capensis, LINN.

HABITS the western districts of the Cape of Good Hope, and is frequently imported to this country: unfortunately its powerful beak, and somewhat quarrelsome disposition, render it an unsuitable companion for the smaller Weavers. A Weaver-bird in a cage may be very handsome, but it is seen to so little advantage that, with a limited number of large aviaries, it has always appeared to me better to be without *P. capensis*, than to confine it in a cage where it cannot fly about freely.

The male of this bird, when in breeding plumage, is velvety black, the flight-feathers dark brown; the lower back and croup bright golden yellow, as also are the lesser and median wing-coverts; scapulars brown with a yellow gloss and black centres; thighs brown; under wing-coverts pale buff edged with yellow, the margin of wing also yellow. Length $6\frac{7}{8}$ inches. Beak dark blue-grey, legs yellowish-brown; iris brown.

The female above is brown, the feathers with broad blackish centres, those of the fore-back with pale margins; lower back and croup olivaceous yellow, streaked with smoky brown; upper tail-coverts pale brown with dusky centres; lesser and median wing-coverts dark brown, with olivaceous yellow margins; remainder of wing and tail feathers dark brown, with pale edges and yellowish gloss; lores

and an indistinct eyebrow olive-yellow; feathers round eye whitish; sides of face and ear-coverts dark brown; cheeks and under surface whity-brown; streaked, excepting on the chest and abdomen, with dark brown; abdomen whitish; under wing-coverts yellowish, quills dusky, with buff inner edges. Length 6 inches.

The male, in winter plumage, somewhat closely resembles the female, but is decidedly larger: at this season the beak is said to be brown, with paler lower mandible and the legs yellowish flesh-coloured.

Messrs. Sharpe and Layard give the following account of the wild life of this species:—

“It is a very common bird throughout the colony, affecting indiscriminately the solitary vley (morass) in the midst of the veldt (open uncultivated country), or the homestead of the farmer. During the breeding season it is seen about reeds, among which it breeds; placing its nest with great art, so as to include in its structure three or four of the firmest and most upright stems, which support it like pillars. The male generally perches on the topmost twigs of the bushes, mingled with the reeds, or on the heads of the reeds themselves; and his brilliant yellow rump, contrasting with his, otherwise intensely black plumage, render him peculiarly conspicuous.”

“In Natal, Mr. Ayres says that they frequent, more particularly, the hills fifteen or twenty miles inland; they are found in small companies in the open fields, and feed principally on grass seeds.”

“Mr. Andersson gives the following note:—This is a comparatively scarce bird in Damara and Great Namaqua Land, but is very abundant at Lake Ngami; it sometimes occurs in large flocks in the open country, and is also found in small communities in the neighbourhood of water, and in humid situations, where it breeds, constructing its nest of strong grasses, and suspending it between the stalks of two or three reeds.”

In the first edition of Layard's work we read:—“Having kept several in cages, I am enabled to describe the moult which takes place. The first thing which changes is the bill; the black commences to show at the tip of the lower mandible, which gradually darkens, from the usual horn-colour to the deepest black; before this is accomplished the upper mandible has begun to blacken, and a few black feathers are visible round the neck; the breast next shows a change, and a feather or two on the back darkens, and thus by degrees the whole bird changes to its splendid black. This transformation commences about July, and is complete in September, which

is the nesting season. The moult back again begins in the same manner. This species lives well in cages. I had one which had been about six years in confinement, and effected his escape after all, from the warping of his cage-bottom, owing to its being exposed to the sun after my pet had enjoyed his bath. He would come to the cage-bars whenever my wife approached them, his long legs drawn out to their full extent, his bright eye glittering even in the midst of his deep black plumage, watching for his morsel of bread. On his being addressed as '*Fink*,' he instantly replied, stretching his neck to the utmost, and uttering the most piercing shriek. We used to laugh, and say he would some day dislocate his neck in his attempts to sing, in rivalry to the Canaries.

"After his bath, or when enraged, which was pretty often, he would erect the feathers of the back at right angles to his body, and then looked beautiful, the light shining through the brilliant yellow, setting it off to great advantage. The nest is constructed of grasses, and is domed, with an entrance near the centre. The eggs, four or five in number, are pale verditer, thickly marked everywhere with greenish-brown blotches and spots: axis, 10"; diameter, 7".

Dr. Russ observes:—"If one has the good luck to acquire a genuine pair, they proceed to breed with unusual facility, compared with the other Fire Weavers, and this is due to the fact that this bird is steadier, is by no means so violently excited as his allies. Without entering into details, *the nest* is constructed anywhere in dense scrub, and forms a tolerably deep, bulky, oval-round purse. *Eggs* greenish blue; *duration of incubation* fifteen days."

It looks almost as though the Doctor had not kept this species; since he gives so short an account of its nidification: he says, moreover:—"By the dealers also called Greater or Double Napoleon-bird; this Fire Weaver is far more rarely obtainable and ever so much less beautiful than the smaller one."

I have seen the bird, from time to time, at Mr. Abrahams', but was never tempted to purchase it; because, in the first place, its beauty did not strike me as sufficiently great to compensate for its harsh song; and, in the second place, its size and strength would almost necessitate its having a good sized aviary to itself, which I could not spare. That it is inclined to be spiteful to smaller associates I have witnessed at Mr. Abrahams' on several occasions.

Illustrations from skins in the Natural History Museum.

THE NAPOLEON WEAVER.

Pyromelana afra, GMELIN.

THIS is one of the most beautiful and plentifully imported of the West African Weavers: it is found from Senegambia to the Niger and Fernando Po.

When in colour the male bird is for the most part of a bright buttercup yellow colour, but the face and chin are occupied by a large black patch which also encloses the eye; the nape of the neck, breast and abdomen are also velvety black, the wings and tail dark brownish, with paler edges to the feathers. Length $4\frac{1}{2}$ inches. Beak black, legs flesh-coloured; iris blackish brown.

Male in winter plumage (and female) above pale tawny brown, the wing feathers blackish with yellowish brown margins; all the other feathers with dark brown centres; a broad buff eyebrow; ear-coverts brown, edged above with blackish; body below sandy brown, the face and breast yellowish; the throat, breast and sides streaked with blackish; throat and abdomen whitish. Beak pinkish horn-colour, lower mandible paler; eye-stripe of male yellower than that of the female and sides of body more striped.

Dr. Russ says that the sexes during the winter season are hard to distinguish, but the male has the colouring of the back and wing-feathers more pronounced, and here and there it has a yellow feather; to my mind the beak is larger, giving the head of the male a more aggressive appearance, which is fully borne out by the bird's behaviour.

Von. Heuglin says:—"We saw it about Lake Tana in Abyssinia, and on Semyen mountains, in the winter, and immediately before the rainy season. Here it appears to be a resident bird, and lives in companies of from three to eight head, which frequently keep close together, and affect low scrub in hedges and dense fields of maize, and about thrashing-floors, preferable in the vicinity of pastures. It has also been observed at Sobat and the White Nile."

Dr. Russ correctly observes:—"In captivity Napoleon Weavers are perfectly harmless and peaceable, towards both large and small associates, only as soon as they don their ornamental plumage, they become uncommonly lively and excitable, and then they are unpleasant



NAPOLEON WEAVER. ♀ ♂.
(*Pyromelana afra.*)

customers; for whilst they do not exactly show themselves snappish and quarrelsome towards weaker birds, nevertheless, they scare and terrify them continually by their restlessness.

For this reason these Weaver-birds themselves hardly ever breed successfully; as they are too restless for nest-building, and in their grey plumage again too timid, so that they permit themselves to be chased too readily by other birds. Nevertheless, it is quite possible to breed them, if one observes their peculiarities and seeks to supply their natural requirements."

"Herr Schneider observed that the males, if freely fed with fresh ants' cocoons, did not entirely lose their colours, but always continued more or less spotted with black and yellow. On an average the ornamental dress lasts fully nine months."

"The love-sport of this Weaver, as well as the fiery and, nevertheless, not dangerous, fights of the males, are very interesting. A Napoleon-bird, in full dress, puffs up its plumage into a round ball of feathers, and buzzes hither and thither like a humble-bee, whilst continually bristling up and smoothing down its feathers alternately, chases every associate of its own, or even of allied species, flies away from it, chases it again, and then gives utterance to its marvellous hissing love-song, which Alexander Von Homeyer compares with the call-note of the Brambling."

"Much in the same way, whether in the bird-room or in a roomy cage, suitably fitted up for the purpose, the male weaves between birch or other twigs, or even close to a slender fork of a branch, a circular wreath, usually standing upright, more rarely lying obliquely, and almost horizontally; this it then arches over, so that a longish round purse is formed, with an entrance passage projecting half way from the side. Many males, however, never make a single attempt at nest-building, because they are too restless, others weave very zealously, but produce no better result than the wreath at most; only individuals actually complete the nest, and such a master-builder is very valuable for breeding, because, without resting, he constructs several breeding places in succession.

"*The laying* consists almost uniformly of four eggs. *The nestling down* of the young is yellowish-white, with white waxy skin to the beak, and the *young plumage* closely resembles that of the adult female, only it is clearer whitish-grey. *The first change of colour* takes place as early as the following year, simultaneously with that of the adult male, moreover, it is perfect, only the yellow does not seem so beautifully deep and intense."

To my mind this Weaver should be in the collection of every lover of foreign birds; it is so lively, amusing, and at the same time beautiful in colouring, that nobody, who has kept it once, will ever wish to be without it. When it has once got over the voyage to England, it is wonderfully vigorous and long-lived: the pair in my bird-room has been in perfect health for six or seven years (as I write), and, as regularly as clockwork, each July the change to the breeding-plumage in the male bird has commenced. I have four other males and several females, purchased in 1895.

When in full colour and seen from the front this Weaver always looks like a little old black woman enveloped in a thick yellow hood. Dr. Russ' description of its buzzing about is very good; but he does not mention the flipping up and down of the wings, which seems to act upon the bird like the winding up of a machine; so many turns, and—whiz! off it goes like a shot, with all its feathers standing out; then, as it alights, in they all go, as if pulled by a string from behind. In fact the whole action is extremely suggestive of a mechanical toy. The song begins with a slow harsh chirping—*Chick, chick, chick, chick, chick*, and ends like a hacking cough with a rapid *tick-tick-tick-tick-tick-tick-tock*.

Illustrations from living specimens and from skins in the author's collection.

THE CRIMSON-CROWNED WEAVER.

Pyromelana flammiceps, SWAINS.

AN inhabitant of North-Eastern and Western Africa, its range extends from Southern Senaar to the Zanzibar district, and from the Quanza River to Senegal.

Prevailing colour of the male, in breeding-plumage, fiery orange-red, the scapulars, and centre of back glossy orange-brown, a narrow frontal band, an elongated patch from the beak to the back of the face (enclosing the eye), the chin, front of throat, chest, and front of



CRIMSON-CROWNED WEAVER. ♂ . ♀.
(*Pyromelana flammiceps*.)

abdomen, velvety black; the wing and tail feathers black, edged with white and pale buff; thighs, vent and under tail-coverts brownish orange. Length $5\frac{1}{2}$ inches. Beak black, legs dull flesh-coloured; iris brown.

The female above, and on the cheeks, ruddy brown, streaked and spotted with black; wing and tail-feathers dark brown, narrowly edged with pale reddish-brown; a broad yellowish eyebrow-streak; chin, throat, abdomen and under tail-coverts almost pure white; breast diffused yellowish-brown, with narrow longitudinal black streaks; Length $4\frac{1}{2}$ inches. Beak pale dull flesh-coloured, legs pinkish; iris pale brown.

The winter plumage of the male nearly resembles the normal coloration of the female. The breeding-plumage is assumed by a gradual and complete moult. Young birds are like the female, but paler.

Von Heuglin seems to be the first Naturalist who recorded the nesting-habits of this lovely Weaver; he says:—"I found this magnificent Fire Finch breeding in almost solitary couples in August and September, in the high grass and thickets, in the territory of the Djur and the Kosanga rivers. The nests are built like those of *E. ignicolor*, and contain three verdigris-green eggs, $8\frac{1}{2}$ mill. in length, which are usually sprinkled at the blunt end with extremely small violet-black spots. They disappear from the above-mentioned regions, when the breeding-season is over. This species seems to be found in Abyssinia also, only during the rainy season, in the neighbourhood of Adwa, and in the lowlands of the Takazze."

Mr. Lewis Fraser describes it as:—"Common about Cape Coast, West Africa, frequenting the Indian-corn plantations."

Dr. Gordon speaks of them as:—"Very familiar, and hop from branch to branch, within a few yards of the person who visits their retreats."

Mr. Monteiro says that on the Quanza it was 'very common; "keeping always among the high grass."

Captain Speke, remarking upon it in Central East Africa says:—"Flies about in large flocks, feeding in corn-fields, and roosting at night in the rushes in the swamps."

Dr. E. Bohn observes:—"Common on the coast of Zanzibar, and near Kakoma, not, however, in particularly large numbers. They prefer to live in patches of very tall grass, on fallow ground or (not only at night) on marshes. Killed here in its transition plumage in the first half of February. I found and received nests, of three to

five eggs, from the beginning of April (on April 11th featherless nestlings), until now, the second half of May. I saw several nests, some with young birds, quite close together in very tall thick grass."

"As long as the Fire Finches wear their ordinary brown plumage, they fly about in such close company, with *Ploceus sanguinirostris*, that a shot sent into the closely flying swarm regularly brings down a number of specimens of both kinds (Mdaburu in Ugogo). At even-tide, these flocks settle among the reeds of almost dried-up swamps to drink and sleep. From every direction, first singly, then in ever-increasing numbers, the flocks come with a particularly rapid and loudly whirring flight, wheeling around closely packed together, with precipitate movements like a flock of grey plover, to and fro, then sinking down noiselessly into neighbouring bushes, where they begin their confused noise, which rather increases than decreases. Hence they fling themselves among the reeds, then back into the bushes, and soon increase so much in force, that their ascent resembles distant thunder, in quite a deceptive way. The masses thus gradually advance to the border of open lakes, and then throw themselves on to the water, from suitable spots, where the clumps of reeds are bent downwards in the form of a terrace, owing to their constantly being used for this purpose; here they fly up and down for a long period, forming an unbroken stream. If one hid oneself in one of the thick bushes, into which the birds were accustomed to fly, one felt a considerable compression of the air, when the flocks flew towards and into it like a living wall; and if one goes through the reeds when it is dark, black, noisy waves, formed by the birds, disturbed from their sleep, seemed to roll over the marsh. The rapid, restless, shy and fugitive behaviour of the Fire Finches, at this time, contrasts wonderfully with their composed, self-complacent manner, when they are accustomed to sun themselves, and strut on the tops of stalks, twittering and shaking their wings, with bristling plumage, in their garb of the mating season."

Dr. Russ remarks:—"The bird-shops only occasionally receive the Flame Finch, which fanciers and dealers are usually unable to distinguish with certainty from the Orange-bird. When carefully examined, it is seen to be altogether slightly larger, more slim, and the glowing colours red and black are differently distributed. In the bird-room the Flame Finch is somewhat quieter, not quite so boisterous, but otherwise agreeing in every detail with the other Fire Weavers.

"Zealous fanciers may depend upon this, that the male and female of this species, as well in ornamental as in grey plumage, may



GRENADIER WEAVER. ♀. ♂.
(*Pyromelana oryx*)

be with certainty distinguished from the former, by the black colouring of the under surface of the wings.

"This Weaver also, I have several times lodged in my bird-room in the course of years. *Its nest* differs from that of its relatives, in that it is somewhat larger, and apparently woven, by preference, of grass-stalks and leaves of reeds. *The laying* every time consisted of five eggs and the *development of the brood* is normal.

"Among the dealers this species is only too frequently overlooked; thus Mr. W. Mieth, of Berlin, possessed several pairs for years, which nobody, but myself, was willing to purchase, until at last he was obliged to give them away at the price of the common Orange Weaver."

As regards the change of color taking place by a complete moult, as stated at the head of this account, on the authority of travellers, I have my doubts: I know that in some of the Flame-Weavers there is only a partial moult, many of the feathers gradually changing from brown to orange, or crimson. (See also Von Heuglin's note on *P. franciscana*, p. 295).

Illustrations from skins in the Natural History Museum.

THE GRENADIER WEAVER.

Pyromelana oryx, LESS.

A GRAND Weaver is the Grenadier or "Oryx Bishop," as he is sometimes called; and the older he gets, the deeper and more fiery his colouring becomes. This bird is confined to South Africa, its range extending from the Cape to Natal, and the Transvaal, and thence to the Zambesi: from Great Namaqua-Land to Damara-Land, and the Lake Regions to Benguela.

The adult male, in breeding plumage, varies according to age, from orange to vermilion, the mantle cinnabar red; as with the allied species the feathers of the neck can be swelled out into a sort of

ruff; the forehead, the face (including the eye and ear-coverts) and the front of the throat black; the chest and abdomen black; upper wing-coverts fiery cinnabar red, quills brown, with blackish centres; thighs, axillaries and under wing-coverts yellowish brown, quills below pale brown, with paler inner web. Length $4\frac{1}{10}$ inches. Beak black with browner cutting edges; legs brown; iris dark umber brown.

Female tawny brown with black shaft-streaks, narrower on the head: wing and tail feathers dark brown, with pale tawny edges; a distinct yellowish eyebrow streak; under parts paler than the upper, with narrow-black streaks, broadest on the sides and flanks, centre of body below yellowish: quills below dusky with yellowish inner web. Length $4\frac{1}{10}$ inches. Beak reddish horn-brown, the lower mandible paler; legs brown; iris ashy brown.

The male in winter plumage nearly resembles the female, but is slightly larger and darker in tone.

In Sharpe's edition of Layard are the following interesting notes on this species:—

"The 'Red Caffre Fink,' though not an uncommon bird, is certainly a very local one; that is, though distributed over the whole colony, it seems to be confined to narrow limits. About Cape Town, I only know of one place where it is to be found, and that is the swampy ground near the Royal Observatory. It breeds in September among the reeds growing in the river, supporting its nest on three or four stems, like its congener *P. capensis*. In the winter time it congregates in flocks, and does much damage to the grain fields in the neighbourhood of its nesting-place, but never strays away from that locality. Nest like that of *P. capensis*. Eggs four or five, pure light blue; axis 10"; diam. 7". Builds in thousands about the swamps and river running out of Zoetendals Vley, also in the Boschjeveldt between Swellendam and Robertson (W. Atmore), but is not found about Grahamstown, according to Dr. Atherstone."

"Mr. Ayres has found it in Natal, where he only saw it on the reedy banks of rivers near the coast, while Mr. Woodward observes, that in that colony he found it only in the up-country districts, where it assembles in small flocks, suspending its nest, which is formed of grass of a very fine texture, from the flags along the river. Mr. T. E. Buckley met with it in the Drakensberg, and also in the Transvaal, where Mr. Ayres has also found them breeding in large companies, in many reedy vlees and pools, and, also, in great abundance in the swamps; they assemble in immense flocks, both in winter and summer, but, during the latter season, the flocks appear to consist almost

entirely of males in their gaudy red and black plumage." Mr. T. R. Barrett observes:—"The 'Red Caffre Fink' breeds in reeds and gardens, and is plentiful about Bloemfontein, in the Free State, thence to the Vaal River, Kronstadt, near Rustenberg, Pretoria, and Potchefstroom. It is a very local bird; and I found it in only a few places along the Vaal, near the diamond-fields; but I did not observe it flying everywhere, like *Chera procne*."

"Messrs. Butler, Feilden, and Reid write:—'Red Fink—Common and universally distributed. Specimens of the male bird were obtained, in all stages of transition, from winter to summer plumage, in October and November. Found breeding in considerable numbers along the reedy streams near Maritzburg (Richmond Road); and eggs obtained in December, though at that time many nests contained young birds. Also breeding in the same place in March, so they must nest twice. The nests are constructed of grasses, domed with a side entrance, and usually placed among reeds, on the stems of which they are formed, about four or five feet from the ground-level, and at the water's edge. Eggs rather pale greenish blue, unspotted.'"

Dr. Russ says:—"A little bird of brilliant plumage, imported alive from ancient times, is the Oryx, also called greater or double Fire Finch,* hitherto, it has always remained one of the rarest, and year by year, one scarcely ever meets with it, in a few pairs, and for the most part only in single male specimens at the large dealers? Superficially as in its entire behaviour it looks like a larger copy of the Orange-bird.

"In the bird-room the Oryx is one of the easiest and also most satisfactorily nesting Weaver-birds. Moreover, he carries a token of it in a most conspicuous manner as evidence. For instance the Fire Weavers exhibit their love-sport, which, as already mentioned, has often been likened to the pairing of Gallinaceous birds, and has been already described in the summary of this group, in an especially lively and comical fashion. Among them again the Oryx excels in a quite remarkable manner. His behaviour in nesting-time is absolutely of such a character as to mock all attempt at description. I must therefore—though very unwillingly—leave to Mr. Emil Schmidt the demonstration of this marvellous dancer as it has exhibited itself countless times in the bird-room to his artistic gaze."

As an illustration, I also append an observation relative to it by Dr. Reichenow: "One constantly sees the male puff itself out and dance in order to exhibit the full beauty of its magnificent plumage to the plain

* Possibly "Two-coloured Fire Finch."—A.G.B.

modest female clothed in grey. I believe there are no other birds so coquettish as the forms of this Weaver. The coquetry is habitual with them, amounting as one may say to folly; they even waltz when they are not observed by the female, and appear to take, the greatest delight in themselves.

"The flight of the Fire Weavers is whirring; during which they hold the upper part of the body very slanting, and this distinguishes them from all other Weaver-birds. Moreover, they are very indifferent flyers and but rarely return by longer routes.

"The first Oryx-Weaver in my bird-room was still so young, that it had not completely acquired its full colouring. Consequently it did not yet stand up with the full, saucy assurance, which at other times is characteristic of it, but rather permitted itself even to be chased by a powerful Orange-bird, which also subdued the Napoleon Weaver and even the Velvet Finch (Yellow-shouldered Weaver). In the following year, however, it flung itself upon the tyrant and conquered all the others. Whilst it industriously built several oval round nests, entirely of agave fibre in the bushes, at a height of about from one to one and a half metres, (roughly, three to five feet), it pursued two females of its own species, as well as those also of all the allied Weavers, with its droll love dance, and very zealously fought with their husbands. Moreover, it hunted all other birds from the vicinity of its nests, and even would not permit a pair of Greyheads (Madagascar Love-birds) to approach their nest-box, which was hanging immediately overhead near the ceiling, so that the female died from inability to lay. These little Parrots, which, indeed, are by nature very brave, were unable to defend themselves against its strong assault. As I let the Oryx Weaver have its own way, I several times reared, from both females, two to three broods in a year. Many a male, however, is so excited and restless, that it never gets so far as nest-building."

Illustrations from living male in the Zoological Gardens and from skins.



ORANGE WEAVER. ♀ ♂.
(*Pyromelana franciscana*.)

THE ORANGE WEAVER.

Pyromelana franciscana, ISERT.

THIS is a well-known, largely imported, and very beautiful little bird which, when once acclimatized, will live for many years without showing a sign of ill-health. It is an inhabitant of Western Africa, from Senegambia to the Gold Coast, and the Niger, and of North-eastern Africa from S. Nubia to Shoa, Somali-Land and Unyoro.

The male in breeding-plumage is principally velvety black; but the neck, chin, and fore-chest are golden orange, shaded with orange-vermilion, and this orange colouring becomes redder and more brilliant with increased age; the scapulars and centre of back vinous brown; the lower back and long plume-like tail-coverts both above and below, golden orange, the posterior flank-plumes fiery orange; thighs buff; beak and legs dull greyish flesh-coloured; iris dusky. Total length $4\frac{1}{2}$ inches.

The female, and the male when out of colour, nearly resemble *P. oryx*, only they are smaller, more unevenly streaked and spotted above, and whiter on the abdomen. Length of female 4 inches.

Von. Heuglin says:—"The Fire Finch is without doubt a true bird of passage in our region of observation. It does not, however, travel in vast compact flocks, and it puts in an appearance, from the interior, in June and July. It is particularly abundant in the low-lying region of Abyssinia, ranging to a height of about 7,000 feet in Takar, Senaar, Kordofan and Nubia. Its northern boundary on the Nile extends to 22 degrees N. latitude. The assumption of colour in the male takes place without a true moult in August and September; then very many pairs assemble in the tangled maize fields, in order to carry on the business of breeding. The nest consists of a rather slight, thin and net-like web of green stalks, which is suspended at a height of from two to four feet, between several *Durah*-stems standing near together, after the manner of the Reed Warbler's nest. They are proportionally small and not deep, and usually contain three thin-shelled bright blue-greenish eggs, slightly glossy, which are lightly sprinkled, here and there, with rust-reddish and liver brown dots; this marking, however, soon fades.

"My friend, Brehm, informed me, that the nests are either built in small bushes, concealed or entirely surrounded with grass, between the stems of the *Durah*, or even in the tall grass. Whether only the hens incubate, I cannot satisfactorily ascertain.

"In its disposition, and call-note, the Fire Finch has much in common with the true Weaver-birds, but we never saw it on high trees; in the Autumn, especially, it keeps almost exclusively to the corn-fields and wild grasses. A company of this restless, chattering and quarrelsome bright coloured bird in the *Durah* fields, when they are growing green and swelling with heavy ears, is one of the characteristic pictures of the landscape of the subtropical region of the Nile. From early morning they are busy feeding, climb extremely nimbly over the stalks and sheaves of corn, stretch high up, chirping shrilly and puffing out their plumage, and crack the hard maize seeds with their powerful beaks. They rarely descend to the earth, moreover, I have never been able to observe them drinking. The song is insignificant in the extreme, somewhat Sparrow-like, the call-note a very shrill rasping chirp."

I have kept several pairs of this lovely species; my first pair, however, did not live long, but proved especially interesting from the fact that the hen built her own nest, which she formed entirely out of hay, attaching the first bents to a cup-shaped wire frame hanging up in the cage: this nest was almost completed when both sexes unexpectedly died on the same day. I, soon afterwards, purchased a second pair, from Mr. Abrahams, both sexes of which are still living; but neither sex has ever shown the slightest inclination to build: the female is very tame and will come to the front of the aviary at once, if mealworms are being distributed: the male is a quiet peaceful bird, occasionally pretending to quarrel with the male Napoleon Weaver, but never actually touching him; it sings industriously when in colour, puffing up its feathers, standing very erect and, at first, emitting regular short notes, which sound like the feeding of young birds; this is followed by a sound, *hurrisch-risch*, which can be best imitated by suddenly drawing a blind, attached to small brass rings running upon a brass rod: I see nothing whatever to suggest Von Heuglin's definition of "Sparrow-like" in any part of the song.

Dr. Russ says:—"In captivity the Orange Weaver resembles the Napoleon Weaver in almost every respect. Owing to his glowing colour, as well as his longevity in the cage, he is equally admired, but only as a bird of beauty, for he offers just as little advantage in song as in facility of nesting. If one begins to attempt breeding

whilst the male is in its ornamental plumage, he need not expect any result whatever, for the bird is so much excited that he cannot get so far as the construction of a nest. If, on the contrary, one brings together a number in grey feathering, they build and nest, as related of the Napoleon bird. Yet one chiefly obtains good results, if he turns loose only a single pair of old well acclimatized Fire Weavers in a bird-room, occupied only by Ornamental Finches and other small birds. They are not naturally sociable, and, therefore, do not require the companionship of their own species. At anyrate, whether the male feels himself thus to be lord and master of the entire community, or safe in the absence of larger birds, he then almost invariably builds nests quickly and well, and brings up successful broods with one, and indeed even with two or three females. In the bird-room of Mr. G. Barnewitz, the dyer in Berlin, a strong male built, with restless zeal, some twenty nests, and the single female available nested several times with good results, in spite of the fact that it had a crippled wing, and was only able to hop about in the scrub. Subsequently, in like manner, I reared young from all the Fire Weavers, and breeding them is in fact not so difficult, if one observes the following rules:—First, one must place the male and several hens together in grey plumage; secondly, one must prevent disturbance due to the disputes of males of the same or allied species; thirdly, one must avoid keeping other larger birds in the same area; fourthly, one must supply plenty of the food mentioned on page 227. (This, in addition to their usual seed, is said to consist of ‘mealworms, ants’ cocoons, egg-bread, &c.’) *For building material*, agave-fibre, as well as threads of cotton and bast are gladly used, as also fresh grass-stalks. *The nest*, in the bird-room, is almost always globular, with the entrance hole placed laterally in the upper portion, and very ornamentally woven separately of agave-fibres. *The eggs* are shining greenish blue and very round; Von Heuglin’s statement that they are marked must be based upon a blunder.” Altogether, the Orange Weaver has been but little bred up to the present time. The statement that the male bird is too excitable to construct a nest is not necessarily correct; for, in 1896 a cock bird in full plumage in one of my bird-room aviaries built several nests, but failed to persuade the hen to take possession of any of them.

Dr. Russ states that this species is peaceable, both in store-cage and bird-room, towards smaller birds; but when in colour, drives all other birds from the neighbourhood of its dwelling, and wages violent warfare with males of its own, or allied species. In this respect, my oldest male, does not follow the general rule, its warfare is mere

make-believe, of the mildest and most innocent description; possibly it may be awed by the presence of larger and more powerful Weavers, such as the Baya, Comoro, and Madagascar Weavers, in the same aviary, for, of my present eight males one which I had confidently turned into my largest small-finch aviary, together with its wife, and a pair of Napoleon Weavers, constantly quarrelled with the male of the latter, and before the end of the year scalped and killed it. The same bird also took great pleasure in chasing any bird which chanced to settle near him and, although I never saw him injure any of these, I thought it safer to restore him and the two hens to the Weaver aviary.

Illustrations from living examples in the author's collection.

THE RED-BILLED WEAVER.

Quelea, quelea, LINN.

THE Red-beaked or "Masked" Weaver, as it is sometimes called, is generally distributed over the African Continent, and is extremely common; so much so, indeed, that occasionally it is possible to pick up a pair for three shillings, although this is more often the price asked for a single bird. Of course the market value of this, and all imported species, varies considerably, according to the quantity which reaches the dealers; but, hitherto, there has been no difficulty in obtaining this pretty and interesting species.

The adult male, in breeding plumage, has the feathers of the back dark brown, with paler borders, the wings and tail are also brown; the forehead, front of face and chin are covered by a kind of black mask, which includes the eye; the rest of the head, throat, breast and abdomen are bright rose-colour; on the nape, this shades away into the brown of the back, and on the chest and abdomen it becomes white in the centre. Entire length $4\frac{3}{4}$ inches. Beak bright blood-red, legs flesh-coloured; iris brown; a reddish-orange ring encircling the eye.



RED-BILLED WEAVER. ♂.
(*Quelea quelea*)
RUSS' WEAVER. ♂.
(*Quelea russi*.)

The female, and the male, when out of colour, are nearly alike; but the male is somewhat greyer; its slightly larger size and bolder carriage, also serve to distinguish it. In colouring the female is brown, the centres of the feathers being dark-brown, the wing and tail-feathers brown, with a yellow margin; crown of head and back of neck brown; a line of creamy white above the eye, as also the eyelid and feathers below the eye; lores and ear-coverts greyish; cheeks and under surface of body yellowish white, pure white in the centre, the throat and chest tinged with buff, and greyish at the sides; sides of lower body brown, the flanks with darker streaks; thighs white; under tail-coverts whitish; under wing-coverts yellowish; beak ochreous yellow. Length 4½ inches.

This Weaver is so abundant, that travellers do not appear to have taken the trouble to study its life-history. The following scanty notes from Sharpe and Layard, are about all that I have come across:—Mr. Ayres speaking of it in the Transvaal says that it is “tolerably common in Potchefstroom and the neighbourhood in summer, associating freely with the flights of *Pyromelana oryx*, which swarms here. It feeds with them on the open grassy plains and corn-fields, principally on small grass seeds which they pick up from the ground.” Mr. Andersson says, that it “is a very common species in Damara Land, where it congregates in immense flocks after the breeding season, and is also common in the Lake regions.”

In captivity this bird is an indefatigable nest-builder, continuing to form one spherical nest after another, as long as material is freely supplied; but, if this is withdrawn, it will set to work with equal zeal to pick the nests to pieces again. When building, it always commences in the same way, forming either an oblique or perpendicular hoop of plaited hay or fibre, between two or more branches, or in the fork of a branch; from this hoop it works, starting from the bottom and gradually filling in the back, finishing off with the front, in the centre of which it leaves a round hole to enter by. I have never known any lining to be added. Even when made of fine hay this nest is so strongly woven, that it is difficult to tear it apart; yet I have seen one of my Baya Weavers gradually pick one to pieces in little over a day, without spending more than half his time over the piece of mischief.

If disturbed when building, the Red-beaked Weaver raises both wings perpendicularly, and moves them gently up and down, much after the manner of a large butterfly when perched on a flower; and, if the intruder persists in its interference, the architect turns upon it,

fiercely chattering; and does its utmost to drive it away; if successful, it returns quietly to work; still, however, warning off all visitors with its wings.

Dr. Russ says that he obtained two pairs of this species; one, a very old pair, he confined in a large cage, and the birds at once set to work at their weaving, and plaited building-material thickly over one side of the wire-work. The younger pair he turned into his bird-room. "The male of the younger pair very early practised its skill as a weaver. It did not choose flexible, slender twigs, but a strong fork of the branch. Here it plaited a girdle-like wreath, standing almost upright, of long dry grass-stems, together with cotton and bast-threads, and this it extended in such a way that it formed a globular cell, with a proportionately small round entrance-hole. At first the female sat near at hand, apparently quite unconcernedly. Both of them, as a rule, were very shy, and rather than trust themselves down below, where the building materials lay in a heap, the male preferred to wait, sitting upon a projecting branch, until one of the other birds, no matter whether larger or smaller, came past with a stalk, which it then suddenly snatched from the bearer and flew with it to its building. That, however, is the only act of violence which I can personally charge it with. When the nest was nearly ready, the hen began diligently to join in the work. I cannot, however, confirm the observation that both do this conjointly and pass the stalks to one another; rather, each stuck to its own stalk, and plaited it alternately in from outside and inside, meanwhile, slipping hurriedly from one point to another. Moreover, the definition to weave (and consequently Weaver-bird) is not quite correct; since the nest consists of a little basket, which is plaited with marvellous dexterity, care and symmetry. The bents, threads, strips of bast and agave fibres are so placed and intertwined with astounding regularity, that they run close to and between one another, encircle the twigs of the forked branch, and produce the true globular nest, freely suspended. Moreover, the Blood-billed Weavers use agave fibres preferably, still they do not despise all kinds of threads and bents, yet they but rarely take fresh grass-leaves: woollen threads, however, they leave untouched, if they can get anything else. When nest-building, both sexes of the pair are by no means quarrelsome, indeed nothing like so touchy as the Ornamental Finches. The male frequently and repeatedly gives utterance to his harsh *shack*, *schak*, *schak*, and pursues the female with quivering wings, as though begging for reciprocal love. In fear and alarm they have a different, also monosyllabic and Sparrow-like cry, and the call-note

sounds somewhat softer, a kind of *tek*. *The nest* is completed in from about seven to eight days, the male working at it about two hours in the early morning, and one hour in the afternoon. Sometimes it proceeds more quickly, but on the other hand frequently more slowly. The Dioch (another trivial name for this species), however, very often leaves a nest uncompleted, or pulls it to pieces again, in order to commence a new one, and before a brood is actually produced; it usually builds quite a number of nests, more or less perfect, until at last the female chooses one to her taste. Indeed, as already mentioned, we find a similar aspect of affairs in almost all the other Weaver-birds, and, therefore, need say no more about it. *The completed nest* is spherical, with lateral entrance hole, and proportionally small, only of about the bulk of a strong man's fist. It looks most beautiful when formed solely of agave-fibre, very firm, and in all parts symmetrically strong, but plaited so thinly that one may see the eggs by looking up from below it. *The laying* consists of from three to seven eggs. *Duration of incubation* fourteen days." Dr. Russ adds that it is of the utmost importance to make sure that both sexes are ready to breed simultaneously. This bird is absolutely hardy and will pass the winter without heat in perfect safety. In 1896 one of my males of this species, instead of retaining its usual characteristics when donning its nuptial dress, assumed the plumage of Russ' Weaver, proving conclusively that the latter (which has been regarded as a quite distinct species) is merely a different phase of the same bird, the absence of the black mask being probably due to local weakness.

As the two forms are frequently shot out of the same flock (Shelley), and are constantly imported together, this fact is less surprising than it might otherwise be thought.

Illustrations from living examples in the author's possession.

RUSS' WEAVER.

Quelea russi, FINSCH.

KNOWN to inhabit the Transvaal and West Africa, and probably occurring everywhere in company with its typical form the Red-billed Weaver.

From *Q. quelea*, Russ' Weaver chiefly differs in having no black mask on the face, and in its buff tinted cheeks; when fully adult it is a very handsome bird, though the absence of the black on the face detracts somewhat from its beauty. In habits it exactly corresponds with the commoner species, building precisely in the same way, and defending its nest just as *Q. quelea* does. I have found it equally hardy and enduring.

I purchased a male of this variety from Mr. Abrahams, some five or six years ago, and turned it into my Weaver aviary; it moults regularly and consorts with the Red-beaked phase, chasing the hens, and quarrelling with the cocks, in the noisy but harmless fashion of *Q. quelea*.

Dr. Russ has the following remarks respecting this Weaver in his *Handbuch*:—"For years past there has been a bird in the shops which has always been associated with the Red-billed Weaver, as agreeing with it, and never described. A male, which I possessed five years ago, and which always acquired its ornamental plumage in the same manner, I in 1877 sent to Dr. O. Finsch, who determined and described the bird.

"Far less abundant in the trade than the common Blood-bill, this much more beautiful rose-red Weaver is imported along with it. As a room-bird it shows the same disposition in every particular; eagerly builds nests, but does not succeed in breeding. For some years past I have lodged several pairs in the bird-room without having bred them hitherto."

It has been said that every child thinks its own doll the best. Whether this be true or not, it is certain that when a pretty species is named in honour of a naturalist, it seems to him to acquire additional charms; the rarity of a species also has a tendency towards enhancing

its beauty in the eyes of its possessor. Nevertheless, looking at the Red-billed and Russ' Weaver side by side in an aviary, my artistic sense is much better satisfied with the colouring of the commoner bird. To my mind, the black mask of the Red-billed variety is just what is required to redeem the face from that naked aspect which Russ' Weaver presents. If I were prejudiced in favour of the more uniformly coloured bird, it is possible that the charms of *Q. russi* might strike me much as they appear to have done its discoverer.

The more experienced dealers believe that they can recognize this variety even in its winter dress, and it is certain that Mr. Abrahams did correctly select one for me; at the same time I must confess that, looking at a number of Weavers out of colour, in the autumn of 1895, it was more by luck than judgment that I succeeded in selecting two pairs of Russ' Weavers.

Neither the Red-billed Weaver, nor its variety, are, by any means, amiable birds, being, next to the Cape Weaver (*Sitagra capensis*), about the most quarrelsome that I have kept.

Illustration from living examples in the author's collection.

TYPICAL WEAVERS.

PLOCEINÆ.

THESE constitute a group not recognized as distinct by aviarists, but based upon a well-defined structural character.

Dr. Sharpe thus distinguishes the *Viduinæ* and *Ploceinæ*:—"First primary very small and falcate, attenuated towards the end; this first primary never reaching beyond the primary coverts, and generally falling conspicuously short of the latter *Viduinæ*.

"First primary large, generally obtuse at the end, and extending beyond the primary coverts *Ploceinæ*."

That this distinction is a real one, important as an aid to classification, cannot be questioned: it is also probable that the length of this

primary may indicate affinity; but, as this particular feather evidently varies in length in the same subfamily, it is equally clear that some of the *Viduline* Weavers must more nearly approach their *Ploceine* cousins than others do; so that, from the view of a student of living birds, it is necessarily to be regarded as of less importance than a total dissimilarity of habits, winter plumage, song, etc. At the same time, this and all other characters should be considered by every bird-lover, and given their full weight: no structural peculiarity should ever be disregarded, for he who studies facts, from every point of view, will assuredly be most capable of sound judgment.

THE MADAGASCAR WEAVER.

Foudia madagascariensis, LINN.

AN inhabitant of Madagascar and the neighbouring islands; it is frequently imported and almost always obtainable: notwithstanding its quarrelsome and somewhat spiteful disposition, its brilliant colouring and liveliness make it a general favourite.

The male, in breeding plumage, is bright scarlet, the feathers of the mantle, scapulars, and back, with brown bases and broad black centres; lesser and median coverts black, edged with scarlet; greater coverts black, the inner ones edged with scarlet, the outer with sandy-olive brown; flight-feathers black with sandy-brown borders; tail-feathers black, with pale brown edges; lores and feathers encircling the eye black; flanks and tips of feathers on the vent olive-brownish; under wing-coverts whitish olivaceous; axillaries rosy whitish; flights and tail-feathers below greyish, with pale dust-brown margins. Length 5 $\frac{1}{2}$ inches. Beak black, legs flesh-coloured, iris brown.

The female is dull olive-brown, the feathers of the upper surface, excepting on the lower back and upper tail-coverts, black-centred, those of the head and neck less prominently than the others; the wing and tail-feathers blackish, with pale olivaceous margins; sides of



MADAGASCAR WEAVER. ♂. ♀.
(Foudia madagascariensis.)

COMORO WEAVER. ♂.
(Nesacanthus eminentissima.)

the face pale greenish olivaceous; a well-defined whitish-olivaceous eye-brow streak, and a dusky line along the upper ear-coverts; under parts greyish, yellow on the throat and greener on the sides, under wing- and tail-coverts.

This species has been introduced into St. Helena, where it has multiplied so greatly as to be a positive nuisance. In the bird-room I have found it more combative than the so-called Fire Weavers, but more particularly with its own species and the nearly allied, though more powerful, Comoro Weaver; indeed, I have no doubt, that the death of my older male bird was due to a blow from the formidable beak of *Nesacanthis*, as I had already kept him five years, and he appeared to be in perfect health on the morning of the day on which I found him dead, below a pot of pea-sticks, which formed a favourite roosting place of these Weavers.

The Madagascar Weaver does not, however, confine his attacks to other species of his own group, he is very fond of scaring away Java Sparrows or the St. Helena Seed-eater from the seed-hoppers, or from his favourite twigs; but, curiously enough, I have never known him to molest young birds, however near they might come to him: this must have surprised the parents as well as myself, for they distinctly showed their nervousness, when their newly fledged youngsters clambered up on that cluster of pea-sticks, and did their utmost to coax them away from the dreaded neighbourhood.

My Madagascar Weavers have never shown the least inclination to build, nor have they taken any special notice of the solitary hen, of their own species in the aviary; occasionally they have made one jump after her, but when she flew away, they never attempted to pursue her.

Dr. Russ rightly says, that very little has been noted respecting the wild life of this bird, but that in every respect it corresponds with that of the Fire Weavers, the species being seen in pairs at nesting-time, but subsequently in families, which later unite into immense swarms, and do considerably mischief to the seed-crops. "In ornamental plumage, which in Madagascar the males assume in October, and in Réunion in November and December, they fight one another furiously. The Naturalist Pollen describes the nest as pear-shaped, with lateral entrance hole, made of fine grasses, plaited between two to four branches of acacia, mimosa, tamarisk, &c., sometimes also in a reed-thicket. Lafresnayes, on the other hand, figures the nest of a longish round shape and suspended between thin twigs. Nothing more definite is recorded."

Dr. Russ' Weavers, when in colour, seem to have had continual disputes; Napoleon, Orange and Madagascar Weavers each fighting the others. In my bird-room, on the contrary, the Comoro Weaver was master of them all; and both Orange and Napoleon Weavers fly without hesitation from the Madagascar Weaver, never attempting to hold their own against him.

"The fights between these Weavers are very comical. The Madagascar Weaver bristles up the neck-feathers, stoops his head downwards, holds the beak horizontally, like a lance in rest, at the same time he lets his wings droop and likewise bends his tail downwards. The Fire Finch bristles up the feathers of the nape, like the mane of a lion, and also the short soft feathers of the crown; at the same time he stretches his entire body perpendicularly, and assumes a most extraordinary position. Thus they stand opposite to one another; now the Fire Finch presses the Madagascar Weaver, so that the latter suddenly hops aside, then suddenly the former makes a rush and again puts him to flight. Then one wheels to the right, the other to the left, each to as elevated a roosting-place as possible, whence they hiss out their hoarse notes against each other, which constitute their song of war, victory, and love.

"Before I more thoroughly understood the peculiarities of all these Weaver-birds, I always offered them the greatest possible variety of different materials for building their nests. Thus, at one time, I imagined that fresh blades of grass and, at another time, that cocoa-fibre would be welcome to them. Every breeder can, however, soon satisfy himself of the fact that most Weavers, which find their way into our bird-rooms, choose by preference agave or aloë-fibre.

"The Madagascar Weaver first completed a nest when in grey plumage, but he tore it to pieces again, and carried on the game of construction and destruction for a considerable time. At length, in the middle of the month of June, when he was again glowing in full ornamental plumage, and had just completed the building of a nest on the usual lines, I noticed that the female also, which up to that time had been perfectly idle, was busily looking about for suitable building materials, and carrying them into the nest. Whereas, up to this time, the male had always pursued his wife and chased her away from food, water, etc., he now commenced quite a peculiar love-sport. Uttering a shrill sound like a bat, the gorgeous Weaver fluttered with quivering wings above the Sparrow-grey female, followed it in all its movements, not, however, as previously hunting it, but courting, whizzing about with extraordinary gestures, similar to his fighting action, with drooping

wings; then, hopping in front of it upon a branch, bending the body over backwards, immediately afterwards pursuing it in its flight, lastly climbing to an elevation, he hissed out to it his comical song.

"The very moment that this brood was fairly started, the male busied himself in building a new nest, and when both the nearly fledged young had come to grief through an accident, the female, two days later, began busily to carry material into the latter also. She collected, more especially, long fibres of flax-silk and vegetable wool, in order, as I supposed, to line the nest-cavity therewith. This supposition, however, was not correct. Two days later the first egg appeared in the nest and, in the intervals between each day and the other, one egg was laid. The female incubated splendidly, it was not fed, but merely guarded by the male. The latter now developed a scarcely credible liveliness and activity; no inhabitant of the bird-room was left unscathed, and, with the exception of the larger parrots and doves, they were collectively hunted and domineered over, so that even the obstinate Ribbon Finch was compelled to leave its nest with four eggs in the lurch. At this time absolutely no other brood prospered.

"*The nest* has the form of a retort with the tube cut off, yet the upper roof stands somewhat over it, whilst the front of the lower wall hangs deep down, so that, moreover, the entrance leads up to it from below. The building is mainly woven of agave fibres, between which also threads of sacking, horse-hair, very thin paper and strips of bast, and also fresh blades of grass, are plaited in, moreover, in addition, here and there, little tufts of flax, silk, and cotton wool; the cavity, however, in which the eggs lie, is only constructed of agave-fibres, and contains no softer lining. The nest thus forms an airy, almost entirely transparent, but very firmly woven purse, about ten centimetres high, and six centimetres in diameter, with quite a short lateral drooping flight-passage. *The laying* consists of from three to six eggs. *Average duration of incubation* fifteen days. *Nestling down* dark brownish."

Dr. Russ, furthermore, observes that when the young have grown up, the male assists in feeding them. On the third day, after leaving the nest, they are tolerably strong on the wing and able to follow their parents about. As a rule, three broods are reared in a year; sometimes as many as four, and at least two, provided that the pair is not molested.

Illustration from a living male and a skin in the author's collection.

THE COMORO WEAVER.

Nesacanthus eminentissima, BONAP.

[NHABITS the Muscarene Islands of Mayotte, Anjuan, Grand Comoro and Mohilla: it is occasionally imported and the less instructed among the dealers sometimes sell it as the hen of the Madagascar Weaver: indeed my male bird, and my present male of *Foudia madagascariensis*, were purchased as a pair, and given to me: in disposition and voice the two birds are identical.

From the Madagascar Weaver this species may readily be distinguished, when in breeding-plumage, by the olive instead of scarlet colouring of the feathers of the mantle, scapulars, back and front of croup on the upper parts; the dull rosy whitish hind portion of the under parts, with darker ashy-olive sides, and under tail-coverts, and dull fulvous-tinted thighs. Length $5\frac{1}{2}$ inches. Beak black; legs flesh-coloured; iris reddish-brown.

The female is olive-brown, with rather broad blackish streaks on the back, median and greater wing-coverts tipped with white. Length 6 in.

N. eminentissima, at first sight, is very like *Foudia madagascariensis*, but it is a slightly larger bird, with a more powerful beak. The two species are incessantly disputing, and the more beautiful, but commoner bird, always comes off second best. Indeed these two birds would be better kept apart, for in the spring of 1894, one of my Madagascar Weavers, after living in constant warfare, with another male of its own species, and the Comoro bird, was killed by the latter. Probably such an occurrence is extremely rare, for the battles of Weaver-birds, though very noisy, and accompanied by a great display of ruffled and quivering plumage, rarely result in actual blows. As with men, the birds which make least outcry, fight most savagely; they are too much in earnest for bluster. In 1897 my bird became outrageously aggressive, even terrifying two powerful Manyah Weavers by its violent onslaughts, so that they crouched on the ground in abject terror. So demoralized were they, that they flew madly before the playful charge of a male Napoleon Weaver, whom they had been accustomed to treat with contempt. My Saffron Finches began to be terribly mauled, and a White-throated Finch was partly scalped by this blood-thirsty Comoro: therefore, on August 9th, I determined to cage him in a large flight

alone, but after an hour's vain pursuit with a net, I was finally compelled to soak him with a garden syringe, before I was enabled to net him. Since that time he has been as wild as a hawk, dashing himself fiercely against the wirework of his prison, whenever anyone comes within a few yards of him.*

Very little seems to be known respecting the wild life of this species; but in the island of Anjuan, where it is known to the natives by the name of "Paramoran" it is said not to be common: it lays light blue eggs. So far as I have been able to discover, this is all that has been published hitherto respecting its habits in freedom.

My bird was given to me about the year 1890, by the Hon. Walter Rothschild, and it regularly assumes its bright colouring in April, retaining it for fully six months.

Touching its behaviour in the bird-room, Dr. Russ can tell us next to nothing: indeed, he says he should scarcely dare to speak of it as an imported bird, if he had not received a single specimen, purchased for him from one of the small dealers. This example was in bad condition, and just on the point of going out of colour. It flew for some time in his bird-room, but was sickly, and in the first year did not regain its bright colouring. Subsequently it was killed by the bite of a Parrot. Dr. Russ considers the bird a very great rarity; but I think, if he followed the example of Mr. Baumgarte, the Railway official, whom he mentions as visiting the small dealers' shops, he would find the Comoro Weaver now and again offered for sale as its commoner relative. I believe many of us lose a good deal, by sticking too exclusively to the larger dealers: personally, I am foolishly conservative in this matter, never going out of my way to look for chance rarities; though if they come to me, I purchase them.

I do not consider the Comoro Weaver half so beautiful a bird as the Madagascar species; Dr. Russ, on the other hand, though he possessed only a bad example, speaks of it as having a "dissimilar, more beautiful, and more fiery scarlet" colour: this, I believe, is an error, an optical illusion, arising from the fact that the scarlet of the Comoro bird is more restricted and surrounded by duller tints. When the two birds are disputing, within a foot of each other, the red of one is indistinguishable from that of the other.

Canary seed is the staple food of this, and the allied Weavers, but they are very fond of spray millet and paddy-rice.

Illustration from a living male formerly in the author's collection.

* In 1898 I turned him into an aviary with Cow-birds and Cardinals; but he had already so knocked himself about, that he died soon afterwards.

THE BAYA WEAVER.

Ploceus baya, BLYTH.

THIS common Weaver-bird is an inhabitant of the greater part of India and Ceylon.

The male, in breeding plumage, is brown, with black centres to the feathers, the feathers of the mantle, however, being yellow, with black centres, and the scapulars brown with paler margins; the lower back is uniformly brown, and the upper tail-coverts are yellow; the wings are dark brown, the lesser coverts with pale brown edges, the median and greater coverts and secondaries with white or whitish edges; the remaining flight and tail feathers with olive yellow edges, the tail feathers themselves being pale brown; crown of head pure golden yellow; a line along the base of the forehead, the lores, feathers round eye, sides of face and ear-coverts, blackish-brown, the cheeks slightly paler; throat pale brown; sides of neck golden yellow, with dusky streaks; front of neck and breast pure golden yellow; abdomen yellowish-white; sides of body pale brown; thighs pale tawny; under tail-coverts yellowish; under wing-coverts pale tawny; flights dusky below, with greyish inner edges. Length $5\frac{5}{16}$ inches. Beak horn-brown, base of lower mandible yellow; legs flesh-coloured; iris dark brown.

The female has the head brown, streaked like the back, but the feathers are not pale edged; the lores dusky, surmounted by a broad whitish-buff eyebrow; feathers below the eye whitish; ear-coverts greyish-brown; sides of neck pale tawny-buff; cheeks, throat, and body below, whitish-buff, nearly pure white on abdomen and under tail-coverts; front of neck, breast and sides ochreous buff, more tawny on the flanks, which are faintly streaked with dark brown, the sides of the breast are also slightly streaked with black; under wing-coverts pale tawny-buff; flight-feathers below dusky, with yellowish margins to the inner web. Total length $5\frac{1}{2}$ inches. Otherwise like the male.

In the winter both sexes are nearly alike, but are more tawny in tint than in the summer, and have broad yellowish borders to the flight and tail-feathers; otherwise they resemble the summer plumage of the female.



BAYA WEAVER. ♂ ♀.
(*Ploceus baya.*)

Altogether, I have had five males of this species, and at the present time have two fine cock birds in my Weaver-aviary, where I find them rather troublesome, as they seem to take a fancy to newly hatched Canaries for breakfast; they also take great pleasure in pulling to pieces the nests which the Red-billed Weavers have just completed, and they have too great an appreciation of their own song, an exaggeration of that of our Corn Bunting, harsh and rasping: nevertheless, they are lively, and their brilliant golden caps and breasts render them very attractive.

These Weavers should never be associated with weaker birds in a small aviary, or they will infallibly deprive them of their toes, if they do nothing worse; doubtless it is all play, but the mutilated sufferers can hardly be expected to understand the fun of it. They are more than a match for Saffron Finches, and I believe my want of success in rearing young from the two first nests of these birds in my Weaver aviary, in 1894, was due to the presence of these Weavers, for I noticed one of them showing the liveliest interest in the contents of the nest-box occupied by the Finches. Java Sparrows, however, seem to be able to hold their own against them.*

The wild life of the Baya Weaver has been very fully described, as might be expected in the case of such an abundant and widely distributed Indian species: it would occupy too much space to repeat all that has been published respecting it, but the following may be quoted:—

Sundevall says:—"The 'Bayas' are very common about Calcutta after April, when they begin to build their nests: before April they were not observed. The nests are skilfully suspended under the enormous leaves of the common palm-tree (*Borassus flabelliformis*). Some are of compact coarse hay, and have the appearance of a purse, being thirteen to fourteen inches long, and seven broad in the lower part, growing smaller upwards to the breadth of two inches, and externally smooth; but they are in a great part solid, so that only the lowest extremity has a small spherical cavity of five inches diameter, with a pendant cylindrical (tube?) at the side. The nest is built from above; so that the cavity is made the last. When it is half-made, so that the bottom is wanting, a transverse wall is made; and the structure has consequently two holes in the lower part, one for the nest, the other for the entrance: these are afterwards completed, each by themselves. The males were supposed to be chiefly occupied in collecting materials; and this seemed the most probable. I shot down, from a half-finished nest, what I supposed to be a female. Two or three nests are often

* My third nest of Saffron Finches was successfully reared.—A.G.B.

attached to the same leaf, and twenty or thirty in the same palm. In the beginning of May, I obtained the newly-hatched young from a nest, and three quite white eggs from another, although many nests were but half-built. The notes near the nests were like the warbling, and call-notes of the Linnet: no song was heard. In the stomach, only rice-grains were found, which they were seen to pluck while hopping about the cottages, like Sparrows with us."

As regards the warbling spoken of above, Colonel Sykes' remarks lead one to doubt that statement, as also the behaviour of the bird when it has the run of a large aviary; he says:—

"There are few wells overhung by a tree where their nests are not seen pendant. They live in small communities, and are very noisy in their labours; they associate very readily with the common Sparrow, at the season of the falling of the grass-seeds. Fruit of the *Ficus indica*, and grass-seeds, were found in the stomach."

Messrs. Horsfield and Moore quote a long and ungrammatical manuscript note by a Mr. Phillips, in which he states that in the neighbourhood of Muttra, the Baya usually suspends its nest from the Babul (*Mimosa arabica*), the terrible thorns of which keep all intruders at a distance. His account of the building of the nest is by no means lucid, and judging from the behaviour of my own birds, I should say it was incorrect. He states that the nest is generally commenced by the formation of a circle like a hoop; but my birds only form a half circle from which the nest is built backwards in the form of a dome, the entrance being near the bottom: he, however, correctly describes the manner in which the builder walks over the outside of the structure, testing the strength of it, at all points, and tightening all loose fibres. His assertion that the Baya never robs his neighbour of materials, is utterly opposed to what I have observed; for, all the time that he is weaving, he seems to be on the alert to rob his own species, or the industrious Red-billed Weaver, and the consequent bad language on both sides is simply shocking to listen to.

Dr. Jerdon gives the following interesting account:—"The common Weaver-bird is found throughout the whole of India, from Cape Comorin and Ceylon to the foot of the Himalayas, and extending into Assam, Burmah, and Malayana. It is most abundant in the well wooded parts of the country; and in the bare table-land of the Deccan, you may travel for days without seeing one. It appears to wander about in some localities, for some observers have stated that it is migratory, but it is certainly a permanent resident in most parts of the country; and their roosting places on certain trees are well-known.

Grains of all kinds, especially rice and various grass-seeds, form the chief food of the Weaver-bird, and I never observed it feeding on fruit, as Sykes asserts he has known it do on the fig of the Banian tree. Whilst feeding, particularly, as well as at other times, the whole flock keeps up a perpetual chirruping. I have seen it feeding in grain fields in company with flocks of *Emberiza melanocephala*; and Sykes relates that he has seen it associate with the common Sparrow.

"The Baya breeds during the rains, according to the locality, from April to September, but I am not aware if they ever have more than one brood. Its long retort-shaped nest is familiar to all, and it is indeed a marvel of skill, as elegant in its form, as substantial in its structure, and weather-proof against the downpour of a Malabar or Burmese Monsoon.

"It is very often suspended from the fronds of some lofty palm-tree, either the palmyra, cocoanut, or date, but by no means so universally as Mr. Blyth would imply, for a babool (*Acacia arabica*, or *Vuchellia farnesiana*), or other tree will often be selected, in preference to a palm-tree growing close by, as I have seen within a few miles from Calcutta on the banks of the canal. Very often a tree overhanging a river or tank, or even a large well is chosen, especially, as Tickell says, if it have spreading branches and scanty foliage. In India I have never seen the Baya suspend its nests, except on trees, but in some parts of Burmah, and more particularly in Rangoon, the Bayas usually select the thatch of a bungalow to suspend their nests from, regardless of the inhabitants within. In the cantonment of Rangoon, very many bungalows may be seen with twenty, thirty, or more of these long nests hanging from the end of the thatched roof, and, in one house in which I was an inmate, that of Dr. Pritchard, Garrison Surgeon there, a small colony commenced their labors towards the end of April, and, in August, when I revisited that station, there were above one hundred nests attached all round the house! In India, in some localities, they appear to evince a partiality to build in the neighbourhood of villages or dwellings; in other places they nidificate in most retired spots in the jungle, or in a solitary tree in the midst of some large patch of rice cultivation.

"The nest is frequently made of grass of different kinds, plucked when green, sometimes of strips of plantain leaf; and not unfrequently of strips from the leaves of the date-palm, or cocoanut; and I have observed that nests made of this last material are smaller and less bulky than those made with grass, as if the little architects were quite aware that with such strong fibre less amount of material was necessary.

The nest varies much in the length, both of the upper part or support, and the lower tube or entrance, and the support is generally solid, from the point whence it is hung, for two or three inches, but varies much both in length and strength.

“When the structure has advanced to the spot where the birds have determined the egg compartment to be, a strong transverse loop is formed, not in the exact centre, but a little at one side. If then taken from the tree and reversed, the nest has the appearance of a basket with its handle * * * * *. Various authors have described this loop, or bar, as peculiar to the male nest, or sitting nest, whereas it exists primarily in all, and is simply the point of separation between the real nest and the tubular entrance, and, being used as a perch both by the old birds and the young (when grown sufficiently), requires to be very strong. Up to this time both sexes have worked together indiscriminately; but when this loop is completed, the female takes up her seat on it, leaving the cock bird to fetch more fibre and work from the outside of the nest, while she works on the inside, drawing in the fibres pushed through by the male, re-inserting them in their proper place, and smoothing all carefully. Considerable time is spent in completing this part of the nest, the egg chamber being formed on one side of the loop, and the tubular entrance on the other; after which there appears to be an interval of rest. It is at this stage of the work, from the formation of the loop to the time that the egg compartment is ready, that the lumps of clay are stuck on, about which there are so many and conflicting theories. The original notion, derived entirely, I believe, from the natives, was that the clay was used to stick fire-flies on, to light up the apartment at night. Layard suggests that the bird uses it to sharpen its bill on. Burgess, that it serves to strengthen the nest. I, of course, quite disbelieve the fire-fly story, and doubt the other two suggestions. From an observation of several nests, the times at which the clay was placed in the nests, and the position occupied, I am inclined to think that it is used to balance the nest correctly, and to prevent its being blown about by the wind. In one nest lately examined, there was about three ounces of clay in six different patches. It is generally believed that the unfinished nests are built by the male for his own special behoof, and that the pieces of clay are more commonly found in it than in the complete nests. I did not find this the case at Rangoon, where my opportunities of observing the bird were good, and believe rather that the unfinished nests are either rejected from some imperfect construction, weak support, or other causes, if built early in the breeding season; or, if late, that they are simply the efforts

of that constructive faculty which appears, at this season, to have such a powerful effect on this little bird, and which causes some of them to go on building the long tubular entrance long after the hen is seated on her eggs.

"I have generally found that the Baya lays only two eggs, which are long, cylindrical, and pure white, but other observers record a larger number. Sundevall states that he found three in one nest. Layard says from two to four; Burgess six to eight; Tickell six to ten. Blyth thinks that four or five is the most usual number. From many observations, I consider two to be the usual number, but have found three occasionally. In those exceptional instances, where six or seven eggs have been found, I imagine they must have been the produce of more than one bird. The Baya is stated not to use the same nest for two years consecutively, and this I can quite understand, without having actually observed it.

"The Baya is frequently taken when young, tamed, and taught to pick up rings, or such like articles, dropped down a well; or to snatch the Ticca mark off the forehead of a person pointed out. It is also taught occasionally to carry a note, to a particular place, on a given signal."

Dr. Jerdon then proceeds to quote Mr. Blyth's account of the many tricks which this bird has been taught to perform, most of which we have seen Canaries performing in the streets of London. He then continues:—

"In an ordinary cage or aviary, they will employ themselves constantly, if allowed the chance, in intertwining thread or fibres with the wires of their prison, merely gratifying the constructive propensity, with apparently no further object; unless, indeed, the sexes are matched, when they breed very readily in captivity; of course, provided they are allowed sufficient room, as in a spacious aviary."

Mr. Charles Horne, in 1869, published some interesting notes on the nidification of the Baya, which are well worth quoting:—

"This morning (July 7th, 1865), as I passed our solitary palm tree (*Phoenix dactylifera*) in the field, I heard a strange twittering overhead, and, looking up, saw such a pretty sight as I shall never forget.

"In this tree hung some thirty or forty of the elegantly formed nests, of woven grass, of the Baya bird, so well known to all. The heavy storms of May and June had taken away many and damaged others, so as to render them, as one would think, past repair. Not so thought the birds; for a party of about sixty had come to set them all in order.

"The scene in the tree almost baffles description. Each bird and his mate thought only of their own nest. How they selected it I know not, and I should like much to have seen them arrive. I suppose the sharpest took the best nests, for they varied much in condition. Of some of the nests, two-thirds remained, whilst others were very nearly all blown away. Some of the birds attempted to steal grass from other nests, but generally got pecked away.

"As the wind was blowing freshly, the nests swung about a good deal; and it was pretty to see a little bird fly up in a great hurry with a long bit of grass in his beak. He would sit outside the nest holding on by his claws, with the grass under them. He would then put the right end into the nest with his beak, and the female inside would pull it through and put it out for him again; and thus the plaiting of the nest went on. All this was done amidst tremendous chattering, and the birds seemed to think it great fun. When a piece was used up one would give the other a peck, and he or she would fly off for more material, the other sitting quietly till the worker returned. Nests in every stage of building afforded every position for the bird, who seemed at home in all of them. The joy, the life, the activity, and general gaiety of the birds I shall never forget.

"August 18.—Noticed to-day how the birds obtain their grass. The little bird alights at the edge of the high strong Scenta grass (*Andropogon euripeta*?) with its head down, and bites through the edge to the exact thickness which it requires. It then goes higher up on the same blade of grass, and having considered the length needed, bites through it again. It then seizes it firmly at the lowest notch and flies away. Of course, the strip of grass tears off and stops at the notch. It then flies along, with the grass streaming behind it. As the edge of the grass is much serrated, the bird has to consider and pass it through the work the right way. This serration renders it so difficult to pull a nest to pieces, and makes the same nest last for years."

Mr. Holdsworth, in a paper on Ceylonese birds, says:—"I have never seen the nest of this species in any other than ordinary branching trees; but Layard says it builds on palms and other trees indiscriminately."

Dr. Russ points out that four allied species are offered in the bird-market under the name of Baya Weavers, viz.:—*Ploceus baya*, *P. manyar*, *P. bengalensis* and *P. hypoxanthus*: he speaks very highly of their nest-building, in which I quite agree with him, but when he says they are altogether peaceable, I can only wonder where he obtained

his examples, since (as already shown) my birds have always proved themselves mischievous and malicious thieves. As Dr. Russ says, the nests built in the bird-room differ chiefly from those built in a state of freedom in their materials: he observes that like other Weavers they prefer aloe and agave fibre to anything else; indeed he states that they refused many other kinds of nesting-material, such as dry and fresh grass, cocoa and bast-fibre. My own birds build chiefly with hay, they have used aloe fibre and bast; but then they have not always been able to select their materials.*

The development of the brood is said to be similar to that of the Red-billed Weaver: Dr. Russ, however, states that in his bird-room he had eighteen examples together representing the four species, and he found it very difficult to take observations of their habits when nesting; he bred the Bengal and Manyar Weavers and the young seemed to resemble the adult hens; the Masked Weaver built from time to time, and the Ornamental Finches utilized the nests for their own purposes. In the matter of feeding the young and all else, the treatment is the same as for the Red-billed Weaver.

Somewhat similar to the Baya Weaver, but far more handsome, is the African Rufous-necked Weaver, of which I long possessed a beautiful male example. Unhappily I turned him into my aviary of *Icteridæ* and they must have pecked his feet, since he soon became to all appearance permanently lame, and never attempted the construction of one of those marvellous nests for which he is famous; in the winter of 1894-5 he died. I have since obtained the Half-masked and Abyssinian Weavers, and find them very hardy.

The Weavers are a large family, of which, from time to time, many species come to hand in a few heads only: to fully illustrate and describe all of these, would almost require a separate work. I have, therefore, confined myself to some of the most beautiful, or more frequently imported.

The illustrations are from living males in the author's collection, and from skins.

* Unpaired males are quite unable to complete a nest; as they require the assistance of the female in plaiting the receptacle for the eggs: this fact has given rise to the mistaken notion that the incomplete nests are built designedly as roosting shelters.—A.G.B.

HULL:
BRUMBY AND CLARKE, LTD.,
PRINTERS.

50 p. 1
495

